Safety Maintenance and Production

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R-5053

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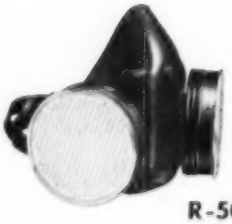

R-5054

R-2034

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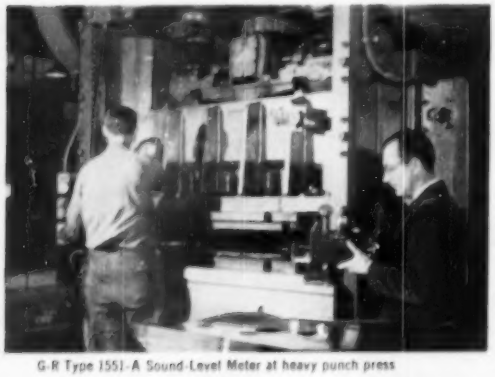
Note: Help prevent costly industrial eye accidents — look for the AO trademark on lenses and frames of safety glasses you buy.

(For details, use Key # Y-1 on card on page 35)

How much noise is too much noise?

G-R Sound-Level Meter and Type 1550-A Octave-Band Noise Analyzer in toolroom analysis of milling-cutter sharpening operation

The use of powerful, speedier industrial machinery and equipment continues to increase national productivity at a rate of better than 30% per decade, but with this advance has come an unwanted by-product — increased NOISE in factory, office, and city streets.



G-R Type 1551-A Sound-Level Meter at heavy punch press

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To combat this annoying and sometimes hazardous problem, progressive, modern-day concerns are turning to the very source of their difficulties. *Technology* provides the answer as well as the cause. New, precision sound-measuring instruments manufactured by the General Radio Company provide essential data on which to base analysis and corrective measures. These instruments permit conclusive determinations — they eliminate dependence on the auditory faculties of human inspectors to judge such factors as the intensity of sound and whether the noise is concentrated at the lower, middle, or higher audible frequencies.

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(For details, use Key # Y-2 on card on page 35)

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2276

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Safety Maintenance and Production

formerly "SAFETY ENGINEERING"

Volume 112, Number 6 **December, 1956**

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Cover picture by courtesy of Armour Research Foundation

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

SAFETY MAINTENANCE & PRODUCTION is indexed regularly by Engineering Index, Inc., New York

What you must know

to identify *harmful* NOISE

HOW INTENSE IS IT?
(*sound pressure level*)

WHAT IS THE FREQUENCY?
(*cycles-per-second*)

HOW LONG IS THE WORKER EXPOSED?
(*duration*)

WHO IS THE PERSON INVOLVED?
(*susceptibility*)

If you are concerned with noise, here's a four-point question outline that will help you find the answer to the big question—Do you have a noise problem?

HOW INTENSE IS IT? This information, which is a measure of the sound pressure level, is read from a sound level meter in decibels. Such a measurement is simply the relationship between a reference value, equivalent to approximately the least sound that can be heard, and the noise measured. Unfortunately, no accepted standards have been set on maximum safe levels. Some references state the maximum at 85 decibels; other sources claim 90 decibels, but such limits must be qualified by the other dimensions of exposure. However, sound level meter readings quickly point to danger areas that require more complete investigation.

WHAT IS THE FREQUENCY? The answer to this one is important because certain frequencies cause more damage than others. For instance, investigations show that the ear is most sensitive in the 2000 to 4000 cycle-per-second region—a fact partly due to the particularly high transmission efficiency of the ear in this region. Instrument readings give you a complete frequency pattern analysis of your operation.

HOW LONG IS THE WORKER EXPOSED? This consideration is all-important. An area where the noise level is not a hazard for a short period of time, can be harmful if the worker is exposed for long periods. It is essential to know the noise levels, frequencies and exposure time to fully appraise the environment. Furthermore, it is important to know if the exposure is continuous or intermittent. From this you see that formulating any noise damage risk criteria must involve careful determination of exposure time.

WHO IS THE PERSON INVOLVED? There are, of course, wide variations in individual susceptibility to noise damage. At present, the most successful way to record this information seems to be complete and frequent audiometric examinations. Case histories spell out the importance of this type of check-up. It has been found, for example, that while one worker's hearing was completely normal after an exposure, the man beside him, equally exposed, required transfer to a less noisy location to avoid damage to hearing.

This outline of questions on noise underscores only the most basic aspects. If you would like answers to your specific noise problems, there's an MSA representative ready and waiting to serve you.

Free booklet, *Noise Questions and Answers*, available—includes practical information that's easy to understand—write for your copy today.

M-S-A® EARSAVER—Peaked-cap assembly for continuous exposure to relatively high level noise. Also available—head-set suspension type for easy put-on, take-off.

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(For details, use Key # Y-4 on card on page 35)

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it's SAFE to say

● LET'S TELL THE TRUTH

No publication, safety or otherwise, discharges its obligation to the reader audience by restricting its editorial columns to editorial viewpoint alone. Aside from purely factual data with which there can be no dispute, SAFETY MAINTENANCE often publishes signed articles or assigned material diametrically opposed to editorial opinion. Not at all incidentally, we can give thanks that this is the American way of publishing!

A case in point is the splendid article on "Human Relations" published in the November issue of SAFETY MAINTENANCE, in which the author states that "some 88% of all accidents are caused by the carelessness of the worker."

Over a long period of time, we have held the belief—in which many of our readers share—that the word, "carelessness" is merely a catch-all and signifies little or nothing. True, the word occasionally is granted undeserved honor by its appearance in our pages despite the firm conviction that usually it is utterly meaningless as an accident-causative factor. Too often, the word merely is a synonym for inattention to safety regulations, over-confidence, poor safety indoctrination or a simple case of plain buck-passing.

A man *carelessly* steps on a nail which has been *carelessly* left upright in a board *carelessly* deposited in a walkway, or an employee *carelessly* left a pair of goggles hanging on a hook and *carelessly* continued his work in the presence of an eye hazard and later suffered the loss of vision in an accident caused by sheer *carelessness*.

Yours may be different, but our dictionary defines carelessness as, "freedom from care, anxiety or solicitude; having no concern with consequences," etc. It would seem therefore that a surprisingly large proportion of our industrial population can be charged with complete indifference to the possibility of or immune to the results of pain, suffering and financial loss!

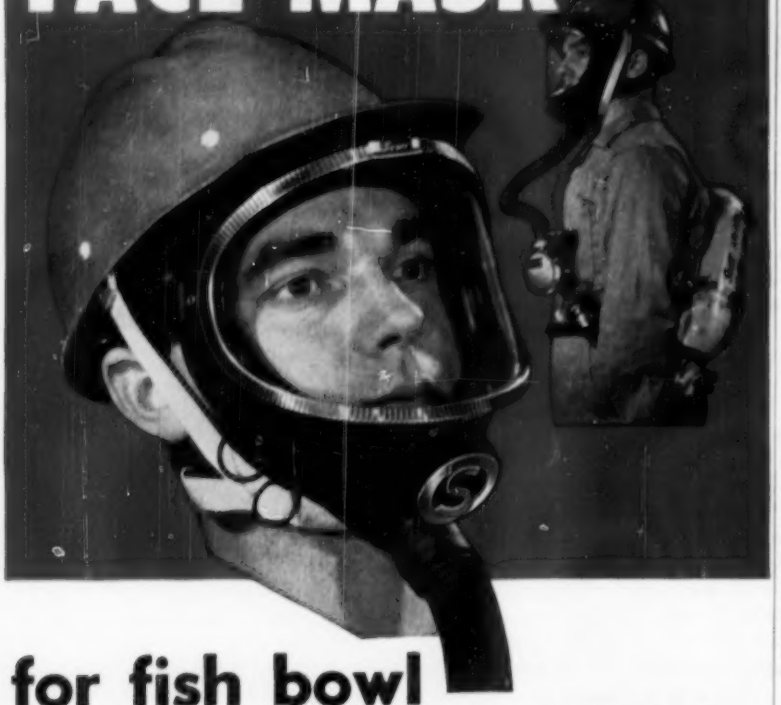
Instead of *carelessness* on an accident report, would it not be more accurate to investigate and report the entire truth that the fault lay with questionable indoctrination of safety habits, superinduced by inadequate supervision and inattention to detail?

In other words, we may assume that one employee may not have known that an upturned nail can poison the blood stream and result in death; the goggle-on-the-hook employee may not have known that certain types of radiant energy or even the slight impact of a flying substance can cause permanent blindness. But by what right do we assume that the victim just did not *care* whether he lost an eye or developed septisemia?

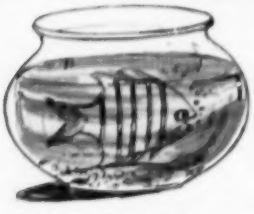
This editorial department never will be convinced that any industrial worker above the mental age of a five-year-old congenital idiot doesn't *care* whether or not he falls victim of an injury. In fact, even infants manifest a very noticeable instinct for self-preservation; it is that instinct which is on the side of the safety man whether his title be director of safety engineering or plant superintendent!

When sheer ignorance, excessive bravado or sloppy safety practices rear their heads in industry, management should accept the challenge rather than run for refuge by charging an accident to "carelessness"; unless, of course, that management is willing to agree in writing that they and the working staff simply does not care! H.A.

NEW SCOTTORAMIC FACE MASK



for fish bowl VISION



in smoke or toxic gases!

Now industrial firefighters, emergency crews and men who work in hazardous atmospheres can enjoy a new standard of face mask comfort and vision. The new Scottoramic face mask with its "wrap around windshield" safety plastic lens gives the wearer an entirely new feeling of mask freedom.

It eliminates any feeling of claustrophobia or fatigue due to working with hampered vision.

Men work faster, more accurately and are comfortable for longer periods of time with the new Scottoramic full-vision face mask.

It may be worn over some types of glasses. Double-lip seal is positive assurance against smoke and toxic gases reaching the wearer. Non-fogging is assured by the circular air-washing action of the cool air.

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Export: Southern Oxygen Co., 15 West 57th Street, New York 19, New York

(For details, use Key # Y-5 on card on page 25)

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Stored Pressure Alarm 54
Water Extinguisher 54
In-Plant Truck 54
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Giant floor machine

Does work of four 16" machines

This giant new MULTI-CLEAN 31" Floor Machine is the *world's biggest* . . . and an almost unbelievable time-saver for the man who really wants to cut down his cleaning costs.

With its brushing area of 855 square inches (compared with 201 for a 16" machine), it will only require 30 minutes to polish 10,000 square feet of floor!

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Address _____

City _____ Zone ____ State _____

(For details, use Key # Y-6 on card on page 35)

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YOUR PLANT *NEEDS* STRETCHERS

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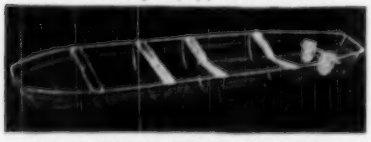

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(Use Key # Y-7 on Inquiry Card on page 35)

Cleveland, Ohio *January 28–31*

Eighth Annual Plant Maintenance & Engineering Show and Conference (Public Auditorium). Clapp & Poliak, Inc., Exposition Management, 341 Madison Ave., New York 17, N. Y.

Los Angeles, Calif. *February 7–8*

Seventh Annual California Statewide Meeting of the Governor's Industrial Safety Conference (Biltmore Hotel). Div. of Industrial Safety, Calif. Dept. of Industrial Relations, 965 Mission St., San Francisco 3, Calif.

Richmond, Va. *March 3–5*

Southern Safety Conference & Exposition (John Marshall Hotel). W. L. Groth, Executive Director, P. O. Box 8927, Richmond 25, Va.

Philadelphia, Pa. *March 13–14*

Twenty-Third Annual Philadelphia Safety & Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, Manager, Philadelphia Safety Council, c/o Chamber of Commerce, 121 S. Broad St., Philadelphia 7, Pa.

New York, N. Y. *March 18–22*

Twenty-Seventh Annual Greater New York Safety Convention and Exposition (Hotel Statler). Carl F. Olander, General Chairman, Greater New York Safety Council, 60 E. 42nd St., New York 17, N. Y.

Boston, Mass. *March 18–19*

Thirty-Sixth Annual Massachusetts Safety Conference (Hotel Statler). Bruce Campbell, Manager, Massachusetts Safety Council, 31 State St., Boston 9, Mass.

Los Angeles, Calif. *March 18-20*

Fourth Annual Greater Los Angeles Safety Congress & Exhibit (Ambassador Hotel). Los Angeles Safety Council, Room 496, 610 S. Main St., Los Angeles 14, Calif.

Fort Wayne, Ind. *March 19–20*

Fourteenth Annual Northeastern Indiana Safety Conference and Exposition (Chamber of Commerce Building). Ivan A. Martin, manager, Safety Council, Ft. Wayne Chamber of Commerce, Ft. Wayne 2, Ind.

Columbus, Ohio *April 9–11*

Twenty-Seventh All Ohio Safety Congress & Exhibit (Deshler Hilton Hotel). A. W. Moon, Congress Manager, Rm. 611, Ohio Departments Bldg., Columbus 15, Ohio.

Kansas City, Mo. *April 11–12*

Central States Safety Congress (Hotel President). G. M. Burns, director, Kansas City Safety Council, 419 Dwight Bldg., Kansas City 5, Mo.

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(For details, use Key # Y-8 on card on page 35)

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"—I would have been ashamed to answer you. But today, I'm glad to say, we have a good Payroll Savings Plan—with 84.4% of our employees enrolled.

"Of course, we've always had The Plan—put it in during the war—but with changes in personnel and our failure to present the Plan to new employees, participation dropped to almost nothing.

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SAFETY MAINTENANCE

S M goes to

THE NATIONAL SAFETY CONGRESS

Industries will some day set up Departments of Human Values to "foster the conservation and enhancement of human values," Admiral Ben Moreell, chairman of the Board of Jones & Laughlin Steel Corporation, told the annual meeting of the National Safety Council in Chicago.

"Such a department would be concerned with the physical and mental health of employees; the satisfactions which they derive from their labors; assignment of proper duties; accident prevention; elimination of health hazards; training and education; congenial working conditions; mental and physical hygiene; wages; security of tenure; promotions; and any other factors which affect the physical and mental well-being of the employee," the Admiral said.

His subject was "Can Labor-Management Safety Programs Be Made Successful?"

"I visualize the dire need for labor-management co-operation in a much larger area than 'accident prevention'," Admiral Moreell said. "If we are willing to define 'Safety Programs' as **all those activities which could contribute to the conservation and enhancement of human values,** we will have a more valid definition of the area of potential labor-management co-operative efforts."

"What are the principal fields of such an area? The most obvious, and the one which is probably of most urgent importance, is **on-the-job** accident prevention. Next in order of obvious need is the elimination of **in-plant** hazards to health. From this it is a logical step to provide information and instruction for the employee in avoiding hazards to health **outside** as well as **inside** the plant—and in building up a reservoir of physical stamina which will enable him to resist disease and physical deterioration."

"Our experience indicates that accidents stem from two main causes which are: (a) unsafe conditions and (b) unsafe conduct," Admiral Moreell said. "In general, manage-

ment can effectively eliminate unsafe conditions. But the elimination of unsafe conduct requires a much more comprehensive and intensive effort, since we are dealing here with the manifold vagaries of human nature."

"There must be developed by indoctrination, education, and training a 'safety-conscious climate' which will result in an enthusiastic acceptance of and an eager willingness to co-operate voluntarily in a worthy cause."

"Here is a vast field of joint labor-management action," Admiral Moreell said. "Our experience proves conclusively that unless there is such co-operation, no safety program can succeed."

While co-operation between Labor and Management in Safety and Health programs has been formalized in the labor contract, Admiral Moreell said: "No formal contractual language can ever be effective in achieving the degree of safety for which we are all striving unless it is buttressed by a deep-seated mutuality of interest between the parties. Surely, here, in our commonly held desire to conserve and enhance human values, we can achieve such a mutuality of interest."

"And, hopefully, we can learn from this experience how to eliminate or reduce antagonism and distrust in the other areas which, in turn, cause so much human misery in our industrial society."

"Much progress has already been made and much more can be made when labor is willing to put aside the accumulated resentments derived from past injustices (many of them real and warranted), and management is willing to take labor into its confidence on many matters heretofore held to be 'top secret,' but knowledge of which is essential to labor if they are to make well-reasoned decisions," Admiral Moreell said.

"What I am proposing here," he said, "is a real partnership, with each partner retaining his own area of exclusive jurisdiction and with a free exchange of information."

The largest crowds of visitors in the history of the National Safety Congress thronged the four-day Exposition where manufacturers' consultants demonstrated the world's greatest collection of safety products, devices and equipment ever shown under one roof.

New devices and refinements of existing products were assembled in spacious, brilliantly illuminated booths where visitors from all parts of the western hemisphere saw such widely diversified safety aids as hearing-testing devices, new plastic and fireproof coating for safety apparel, non-spalling hand tools, safety solvents, chemical fire extinguishers, reinforced plastic extension ladders, electrical safety signs, adjustable lighting equipment, electronic smoke detectors, floor maintenance materials as well as accident prevention standbys represented by head, lung and foot protective devices.

Three floors of Chicago's largest hotel were utilized by this pageant of protection demonstrating the greatly accelerated pace of development of the country's leading safety equipment firms: As fast as industry expands and new hazards are born, safeguards are devised to stem the tide of accidents and make the American industrial employee the world's most protected worker.

"At this moment the war we are waging on accidents is not going the way we want it to go," declared Ned Dearborn, newly re-elected president of the National Safety Council.

"The ugly fact is that we have lost ground in this war during the last year—or, as a matter of fact, during the last 18 months. We have suffered reverses that we cannot realistically ignore or minimize," continued Mr. Dearborn.

To the safety promotion program of Youngstown Sheet & Tube Company, Youngstown, Ohio, there has recently been added changeable copy plant signs as illustrated. Copy on the five by fifteen foot panels is formed by the use of 10-inch plastic letters and changed frequently.
Picture by courtesy of Wagner Sign Service, Inc.

Highway Death Toll Up

"This is especially true in the field of traffic accidents, where the steady improvements we were making until 18 months ago have yielded to a persistent rise, month after month, in the highway death toll.

"We face the tragic fact that unless we suddenly hit upon a plan of attack more effective than any we have devised up to this moment,

(Continued on page 56)

Safety & Style Sell Shoes

20%
of lost-time accidents before store opened were foot injuries

These Figures Tell Story!

Fashionable footwear is not confined to the shoe salon, as the ads would have you believe.

A unique shoe store, which stocks 18 stylish models for both men and women in dress oxfords, moccasins, loafers and saddle shoes, as well as work models, does a booming business—right in the heart of the Dodge Auto's Main plant in Detroit. In fact, sales at this plant-operated shoe store have exceeded 5,000 pairs since it opened last year!

Although to look at them you'd never guess it, each pair has steel caps in the toes to protect the wearer from toe and foot injuries. The phenomenal success of these "fashionable" safety shoes has reduced such accidents to a minimum, says John V. Clark, Dodge safety director. Before the shop opened, more than 20 percent of all lost-time accidents at Dodge were caused by foot injuries.

During the first nine month's operation of the shoe store alone, 4,069 pairs were sold, for an amazing average of 20 pairs per day. Employees purchase the safety shoes at cost, either on a cash basis or through payroll deduction. Located near the end of the final car assembly line, the shoe store is easily accessible to all plant employees who are permitted to visit it on company time.

20
pairs of shoes sold daily at store

Guard Producers Show How to . . .

STOP Accident

by **JAMES V. MILITELLO**
Manager, Manufacturing Division
American Allsafe Company, Inc.
Buffalo, N. Y.

. . . if a guard decreases a machine's productivity, the loss should be charged to production, because it must pay for this time in either protection OR compensation and accident-caused production losses.

The role of the guard manufacturer is one of every-increasing importance to both the machine manufacturer and the machine user. It is also one in which there are many problems.

Machinery manufacturers have, for a long time, recognized the fact that they cannot always build into their products the variety of safety guards required by their many customers. Nor can they provide devices that would satisfy the different laws of the various states. The machinery manufacturer is not to blame for unguarded machinery. His customer, the product manufacturer who uses this type of equipment, has complete responsibility for that problem.

Some product manufacturers feel that the simple starting devices offered on machinery are adequate. Others feel that they can depend on the human element to make conditions safe. Many have safety programs and do all they can to guard machinery. Still others feel that they have the luck of the Irish until they have an accident or are fortunate enough to have a representative from the state labor board call who recommends, in a nice way (usually a directive) to do something about guarding.

In many cases, a plant's own personnel are put to the task of trying to plug the hole between hazardous operation and a safe one. Some have done a job, some have not. In many places production has suffered needlessly. Some of these product manufacturers would also be surprised if they figured out the staggering total costs of some of these plant-built guards.

Actually, however, machine guarding should not be measured by the dollars expended but only by its effectiveness. The human element is difficult enough to cope with, without supplying it with low grade safety equipment. Even the very best and most expensive device is none too good where human life and limb are concerned.

Good guard manufacturers have made it their business to know machinery and its intricate operation and they can make a study of the particular hazards involved with full understanding as to what possible trouble can take place. There should be no compromise where complete safety is possible. There is no such thing as "good enough."

The worth-while guard manufacturer is one who fully understands the process of good safe practice and who is not willing to compromise with safety in his product in order to make a sale at an attractive price.

The price-minded guard buyer eventually discovers that he has been deluded because the equipment he purchased did not perform

What to Look for in a Machine Guard

1. Whenever possible, it should have an interlock so that removal or opening of the guard will shut down the machine at once.

2. Electronic or mechanical devices must "fail safe."

3. Belt, chain and gear guards should permit access to parts without removal of the guard and have interlock switches to prevent operation of the machine during repairs.

4. Gate or slide guards should be interlocked with the clutch operating mechanism.

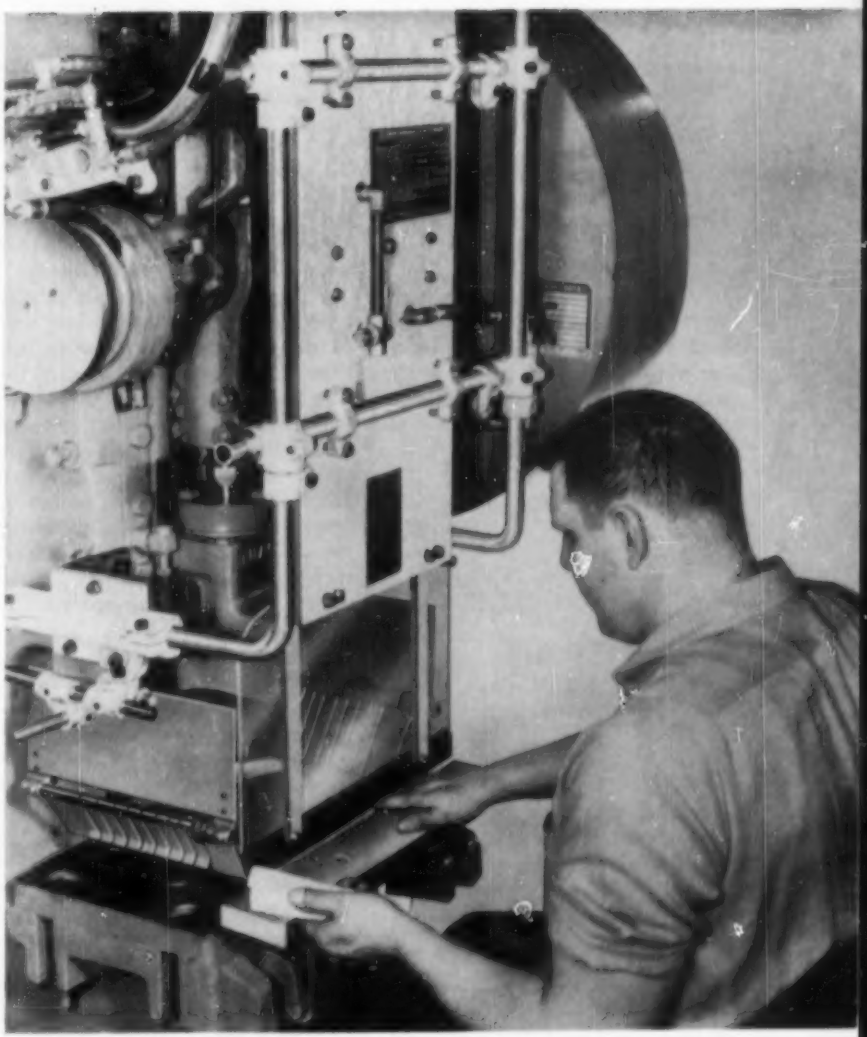
5. Guards must protect not only the operator but also other personnel in the area.

t Caused Production Loss

as he expected. After much trial and error he finally comes to the realization that he has spent many times the amount of money as he would have, had he selected quality guarding in the first place.

A safety device should not be considered a hindrance to production. What the manufacturer must realize is that a machine is normally rated in an unguarded condition and running continuously, but such a rating hardly reflects normal operating conditions, not to mention safe operating conditions.

For instance, a certain make of press has a rating of 50 strokes per minute. Methods people may conclude that a machine which is running at this speed can be stepped off with the standard foot control at maybe 35 strokes per minute and base their information on this. This, of course, is entirely wrong as the machine should have been guarded first and rated accordingly.



Cost of Protection

It is a constant struggle for the guard manufacturer to impress this fact upon many of his customers. To expect a guard to increase production from single machine controls in many cases is unreasonable. The difference between what the machine can be stepped off at and that at which the guarded machine can operate is a cost that production must bear. It must pay for this time in either protection or compensation.

The difficulty here has been that in most plants the cost of protection is directly figured in production while compensation and safety is figured in as a burden. Actually, production people have little to do with the burden but are directly connected to and control the direct product cost. Production people in many plants look upon guarding devices as obstacles and are not made to realize that they must share the cost and have a direct responsibility to it; and in the final analysis, the combination of labor-material and burden are what determine trust costs.

There are many excellent machine guards and safety devices produced today which can be considered as the semi-package type.

There are many home-made devices built in specific plants which do not permit a maximum of production, or else do not provide adequate safety. The manufacturer of top-grade equipment builds into his guard, or safety device, features that will create both the maximum

. . . if the guard manufacturer and the prospective buyer will really *listen* to each other, both will profit from the exchange of ideas . . .

production and maximum safety. Such devices are pre-fabricated to the extent that is practicable and, from that point on, tailor-made or bracketed to fit the needs of the customer on specific types of machinery.

Not Cheapest Way Out

Such devices are the ones which far-sighted safety engineers and the operating management should consider. **The acceptance of anything less than good guarding by the manufacturer is not the cheapest way out of it, but by all odds, the most expensive,** because ultimately, accidents creep in and good equipment has to be purchased in the long run anyway.

Any type of guard that has to be put on a machine, whenever possible, should be provided with an interlock so that the removal or opening of the guard will shut down the machine instantaneously. If it is a mechanical device or an electronic device, it is not a good device unless it fails safe. In other words, it should be necessary to repair the part which has failed before the machine can be used, and it should shut the machine down instantaneously, when the failure takes place.

Ready Access Required

Belt, chain, and gear guards should be designed so that the parts can be reached and made accessible without removal of the guard itself. In other words, the side of the guard from which the repair work is to be done should have a door or be so hinged as to permit ready access to the parts requiring repair. Such guards will have interlocking switch mechanisms which will tie in with the electrical circuit, making it impossible to operate the machine or the section of the machine being repaired without closing the door first. In most states, the requirements in laundries is for the extractor to be built on this same principle. The cover is interlocked with the drive motor so that the cover cannot be opened until the inside basket which dries out the clothes has stopped turning. Nor can the basket be started again until the cover is all the way down. That is the principle we have in mind for all forms of guarding.

Where gate type devices or slide type devices are employed, they should be interlocked with the clutch operating mechanism of the machine. For example, so that a punch press cannot be operated unless the press is completely enclosed and so that if the device is taken off the machine, it cannot be operated. So-called electronic devices of several types on the market should not be considered by the purchaser unless they are built to fail SAFE.

Good machine guarding by reputable manufacturers of such equipment should take into consideration not only the operator but everybody else who might be around the point of danger, otherwise the device does not fulfill these requirements of good, safe practice. Any device which does not fulfill these requirements will utimately be the cause of injury to someone other than the operator, as has been frequently recorded.

In special cases, such machines as punch presses, draw presses, hydraulic presses, die-casting machines, and injection molding machines for plastics, guarding manufacturers must consider the protection not only of the operator but everybody who may be around the machine. Otherwise, it is not a good guard. An operator with a two-hand starting device can amputate the hands or fingers of a curious meddler on the back of the machines without even knowing he is around, and unless the back of the machine is also guarded, the machine is not safe. Nor is the operator protected unless steps are taken to provide safety for him in the event of an inadvertant repeat of the machine.

In the case of machines such as guillotine paper cutters, two-hand devices can be used quite satisfactorily even in darkrooms providing the machines are equipped with an interlocking mechanism which protects the operator against a repeat of the cutter by stopping the machine immediately by means of a break-pin or break-collar on the countershaft. Such a mechanism, if properly constructed, will also prevent the machine knife from backing down by locking the knife mechanism instantly, thus preventing its descent under any and all circumstances. Such devices are being made and supplied at the present time to manufacturers of such machines by manufacturers of safety devices.

Cooperative Effort

All in all, the role of the manufacturer of safety devices and guards and also that of the safety engineer and his management can best be accomplished if they are willing to listen to the manufacturer of safety devices who has quality merchandise to sell. The guard manufacturer will also do well to listen to the prospective buyer of such safety devices or guards if, during the conversation, ideas can be born to provide better ways of guarding and improving his product. Therefore, it is altogether a cooperative effort which is necessary to produce the best and most desirable results.

From an address presented at the 26th Greater New York Safety Convention. Picture by courtesy of American Allsafe Co., Inc.

how to remove or repair cornices

Twenty-five years ago, cornices were a widely used, popular ornamentation for commercial builders throughout the nation. Today, through the ravages of time and the elements, many have become loose, crumbly and are a possible threat to life and property—in need of repairs or removal. How to make the necessary repairs or to take them down with the utmost speed and efficiency is an ever-increasing problem. This is particularly true in the larger cities where the population density increases the hazard.

However, in New York, Chicago, Boston, Philadelphia, San Francisco and other big cities, building owners are now heeding these danger signals and are repairing or removing threatening cornices with the help of modern steel scaffolding methods.

Method Met Needs

For instance, on the First National Bank Building in Chicago, existing roof conditions, safety and other factors dictated use of the "roof suspension" scaffolding method as most efficient for this cornice removal job. Still another Chicago job on which the same conditions existed, used the same method and proved it to be equally as efficient.

In New York a "cantilevered" scaffolding method was used to provide working levels out, over and beyond a parapet wall. Cantilevering was also used, with a different twist, for cornice removal on a San Francisco hotel building. Both were specifically designed to overcome the existing conditions and to accomplish the work with the least waste of time, equipment and man power.

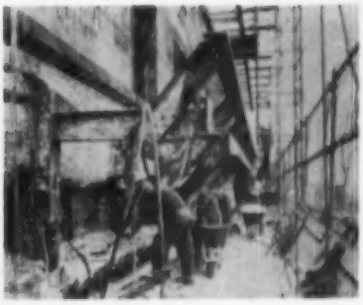
Still another method serves to achieve the desired result on a Boston college. In this case, building the scaffolding "up from the ground" with prefabricated sectional steel frames proved more practical since the building is not very high.

Obviously, there are many ways in which the repair or removal of cornices can be accomplished with speed, efficiency and safety. However, what is used on one building may not be suited for another, unless the same structural, street conditions and safety requirements exist. Often, cornice removal can be undertaken by the use of one of the many types of scaffolds available. In other words, the method used depends upon the specific conditions encountered in each particular situation.

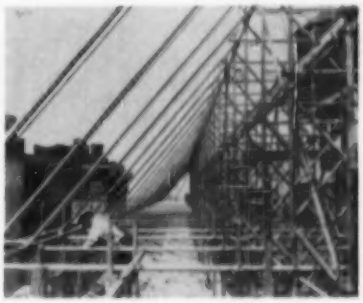
To help get the right scaffolding method for the job, The Patent Scaffolding Co., Inc., offers complete nation-wide engineering service available locally. Any one of the offices or representatives that sell or rent their products can help contractors and building owners save time and money on cornice removal or repair work.

Pictures by courtesy of The Patent Scaffolding Co., Inc.

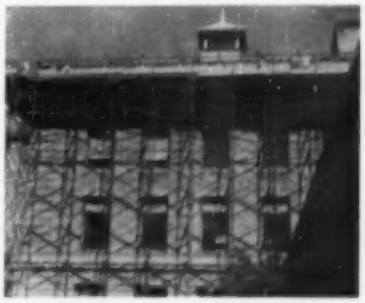
BY ROOF SUSPENSION—A 3-level hanging scaffold helps in speedy removal of cornice.



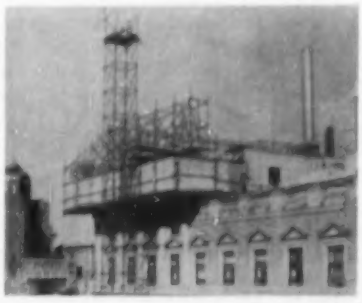
ANOTHER SUSPENSION JOB—Scaffolding hangs from cables roof-anchored by I-beam.



CANTILEVER METHOD—Permits removal of cornice without disturbing parapet wall.



ALSO CANTILEVER—Scaffold, triple-tied, includes elevator. Hotel guests undisturbed.



UP FROM GROUND—Prefabricated scaffold builds up quickly. Suits low buildings.

modern products & equipment simplify floor maintenance

Figure 1. Combination scrubbing and vacuum machine.

by **WILLIAM F. BODE**
The Selig Company
Atlanta, Ga.

It would be impossible to cover every phase of industrial floor maintenance in one relatively brief article. For the purposes of this discussion, therefore, we will define industrial plant floors as those areas in the production or operational sections of the plant and limit ourselves to the two most widely used floors in industry—concrete and wood.

Although floor maintenance systems, procedures, and materials have made remarkable strides in the last ten years, the field of floor maintenance is just beginning to come into its own—not only in industrial plants but in institutions and commercial buildings as well. Factors of safety, the value of the physical plant, efficiency of operation, and economy all are dependent to varying degrees upon the sometimes neglected or even nonexistent floor maintenance program.

However, management has become more and more "floor" conscious in recent years, to the point that floor maintenance now has its own place in the every-day operation schedule of many industrial plants. It becomes a department and not the step-child of the master mechanic. It has come to be looked upon as an investment, just as is expensive machinery and equipment—and the plant itself. The following discussion is, therefore, intended to illustrate relatively simple and economical methods of conditioning and maintaining these two types of industrial floors.

Concrete Floors

Concrete floors are more or less the standard in modern industrial plants, and reasonably so from a practical standpoint. They are rugged, serviceable, and practically wear and tear proof. However, like any piece of property or equipment, they must be maintained properly in order to insure the maximum life and service which is, more often than not, taken for granted on a concrete floor. Depending on local conditions, of course, but for the most part, it is extremely desirable on all concrete floors to "condition" them to prevent dusting, staining by oil and grease, and chemical deterioration and to provide a color finish.

Sealing the floor accomplishes all of these points, but before recommending the proper type sealer, it might be well to review the ingredients in concrete as they actually determine the type of sealer which must be used, particularly on new concrete floors.

In the cement-sand-stone mixture which makes concrete, the lime in cement makes it strongly alkaline. This alkalinity is more or less destructible to most floor finishes such as ordinary deck paints and the conventional phenolic resin type sealers. Moisture in all comparatively new concrete floors "ac-

You Should Seal

1. Prevent dusting. This keeps dust out of machinery, keeps merchandise from getting dusty, eliminates health problems, and generally makes over-all maintenance easier.

2. Prevent permanent staining with oil and grease and thereby reduce slip hazards by making the oil and grease de-

Figure 2. Single disc scrubbing and polishing machine.

Figure 3. Wet or dry vacuum pick-up machine.

tivates" the alkalinity which immediately goes to work on ordinary paint and sealers. The almost immediate visible result is peeling. On an "old" concrete floor (for an arbitrary definition of "old" let's say 6 to 12 months) which has "cured" completely, this will not happen. Now—does this mean new concrete floors cannot be sealed successfully? Fortunately, not—because within the last few years our industry has been able to offer a new group of sealers with a rubber resin base. These new sealers are completely unaffected either by alkali or moisture and can be used successfully on all concrete floors, new or old.

Rubber resin sealers are available both in color and clear. The clear sealers actually have an amber color, slightly lighter in appearance than the phenolic resin type penetrating sealer. The clear rubber resin sealer is a penetrating sealer and has a greater universal application than the color group. Being a penetrating sealer, it lends itself to easy application (a string mop, mop bucket, and wringer are all the tools necessary), dries quickly, and is easy to maintain. It might be called resilient and as such, is ideal under the heaviest traffic conditions. It actually dissolves itself so that a second coat application, when necessary, becomes one coat with the first coat. The floor is first prepared as any other floor for surface treatment. It must be clean, free of dust, oil and wax—and it must be dry before the sealer is applied. The very dust, which we wish to eliminate by sealing the floor, should first be removed from the floor by mopping

al Concrete Floors to:

posits easily removable by mopping or scrubbing.

3. Prevent deterioration from the action of alkalies and acids.

4. (Dependent on local conditions) Provide a finish in color for purely decorative purposes, to improve appearance, or to define work or production areas.

[redacted]

or wet scrubbing with a mild alkaline cleaner or synthetic detergent, or by vacuuming.

Maintenance of the rubber resin sealed floor depends to a great extent on the individual installation. Many plants require power sweeping. Others must be wet scrubbed and vacuumed with one of the large combination scrubber-vacuum machines shown in Figure 1—an operation which is made much simpler where greases and oils are prevalent as these two deposits can be removed completely from the floor because of the sealing properties of the rubber resin sealer. The single disc scrubber and individual vacuum, also shown in Figures 2 and 3, may be used for this purpose and, of course, some areas will lend themselves to damp or wet mopping. In any case, the thoroughness with which scrubbing can be accomplished, because of the presence of the sealer, guarantees safer floors throughout the plant.

Where it is desirable to use a rubber resin enamel in one of the many colors available, whether for decorative purposes, or to define work or production areas, or in the

. . . Safety, the value of the physical plant, efficiency of operation, and economy—all depend on a good floor maintenance program . . .

lighter manufacturing industries, the end result is the same—but there are several differences in preparing the floor. The floor should be cleaned as usual, then etched with 10% to 15% solution of muriatic acid and water. This is done to improve bonding conditions for the enamels which are surface finishes rather than penetrating sealers. After thorough rinsing and drying, the rubber resin enamel is applied either with a paint brush or lamb's wool applicator, depending upon the size of the area. Although the drying time is 3 to 4 hours, it is recommended that each coat be let dry over-night.

The enamels present a slightly different maintenance problem which is really a simple one because of the "dissolve itself" feature of the enamel. Worn areas are bound to appear eventually where traffic is the heaviest. By applying the rubber resin solvent in and around the worn area, letting stand, then applying a second coat of the enamel over the area, the two coats become one and are easily blended into the surrounding area.

So—the rubber resin sealers have solved a problem on concrete floors to which, several years ago, there was no answer—that of sealing a new concrete floor as soon as it was ready for traffic. This brings to mind a new and very interesting use to which we are suggesting that these sealers be put. We are recommending our rubber resin sealer to concrete floor contractors as a membrane curing compound. When applied to new concrete as soon as it has been troweled, it will retard evaporation to the point that we believe will eventually eliminate the expensive necessity of continually wetting down layers of kraft paper, burlap, earth, hay or straw. Incidentally, the product meets the requirements of the ASTM specification for membrane curing compounds.

Wood Floors

Our discussion on wood floors will be limited to the conditioning and maintenance of hard maple. We will use the textile industry as a specific reference as it is probably one of the largest users of hard maple and its maintenance problems are common to, or greater than, those in many other industries, as they include the presence of grease, oil, moisture, truck and foot traffic—and sometimes acids and alkalies.

The same cycle of conditioning and maintenance prevails on wood floors as on concrete—cleaning, sealing, and daily maintenance. A further similarity is that hard maple floors, like concrete, seem almost indestructible and for this reason are sometimes neglected. A properly conditioned hard maple floor is practically everlasting. Conditioning of a new floor consists of sanding, sealing, and daily maintenance. Until recently, the conventional phenolic resin type sealers (either penetrating or surface grade) were the answer, but again there has been a new development which we think may eventually replace the phenolic resin sealer. I am sure we are all familiar with the "yellowing" which always becomes evident with the phenolic resin seals after they had been on a floor for any length of time. This yellowing, of course, was caused by oxidation. Although the wearing qualities and general appearance of the phenolic resin sealers left nothing to be desired, this unsightly yellowing was something which has been eliminated with the advent of the epoxy group of sealers. This type product, with a slightly lower solid content than its phenolic resin counterpart, gives every indication that it will outwear other sealers and we guarantee that our own series will never darken or yellow with age. Although this discussion is limited to the penetrating type (and combination penetrating-and-surface sealers where applicable) this group of products also includes the high-gloss, heavy-bodied sealers for use in such places as gymnasiums and ball rooms.

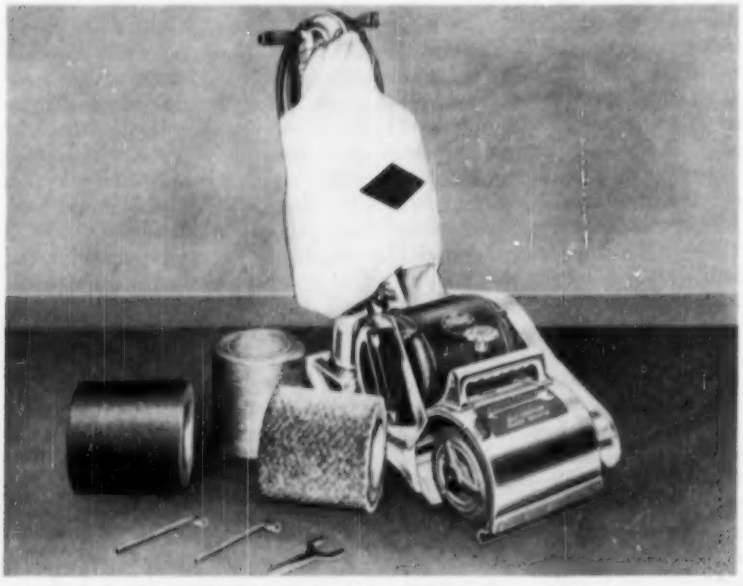


Figure 4. Combination sanding and steel wooling machine.

(Continued on page 61)

Aid in cutting New York's accident rate was asked of community, labor, industrial and professional leaders at the recent Safety Conference.

One State's New Safety Strategy

LONG-RANGE PLANS

Brigadier General David Sarnoff, *Chairman of the Governor's Advisory Committee on Industrial Safety*

". . . I would like to suggest an idea which . . . concerns the need for us to know more about how to make *people* safe. It is my belief that there is great necessity for more effective research on the human factor in accidents."

". . . We are all conversant with the excellent research of safety engineers, and their work should certainly continue. But I feel that there should be research by other experts who could bring a fresh approach to the problem—research, for instance, by scientists, biologists, physiologists, psychologists and other specialists to be found in most of our college and research institutions."

New York State may have declared war on accidents, but did it have any ammunition for its guns? That has been the big question ever since Governor Harriman, recognizing the tremendous waste created by accidents, on June 25th called for a Governor's Conference on Worker Safety to be held September 27–28, mobilizing leaders of industry, labor, insurance and accident prevention to devise a strategy for reducing the $750 million annual toll of occupational injuries and deaths.

The New York Department of Labor, under Commissioner Isador Lubin, had worked out a new offensive against accidents but the success of the plan depended on the support of management, labor and safety interests. Governor Harriman appointed a committee of 52 executives representing the interested parties as an Industrial Safety Advisory Committee under the chairmanship of Brigadier General David Sarnoff, chairman of the board of RCA, to work out the details of the new strategy.

At the September 27–28 conference in Albany it was evident that there was not only plenty of ammunition but also plenty of manpower behind the drive against accidents. The significance of the meeting is that, with the enthusiastic support shown by the representatives of the various interests, it is now possible to initiate a bold safety experiment on a broad front. The new offensive will bring greater technical assistance for reducing accidents and injuries to individual plants and industries, additional guidance in the organizing of safety programs, especially for small business, and increased research into the causes behind the causes of accidents. Perhaps the biggest single achievement of the conference is recognition of the fact that, with cooperation, something can be done about accidents and hazards that are not, or cannot, be covered by New York State's safety codes.

Following are excerpts and highlights of some of the speaker's addresses at the September con-

ference in Albany, outlining the principal points in the new strategy, the response of industrial, labor, insurance and safety interests to the new plan, and additional problems raised.

Industry's Viewpoint:

- "Up to a few months ago, the visit of a State inspector was a rather uncomfortable experience. His principal function appeared to be to ferret out law violations and issue orders to comply. Under the new system, the experience was quite different:

"When the inspector came around, he made a complete inspection of my shop and listed a number of suggestions. We sat down and discussed each of the proposed changes. Some were obvious and were immediately accepted. I had a chance to discuss alternative methods of achieving the safety result we were looking for."

- "The next frontier of Safety is in the human mind. . . . A major concern now is to build safety into our thinking just as effectively as we build it into our environment. . . . The task of solving the problem as it involves people's feelings and attitudes is one demanding united effort of management, labor and all elements of our community."
- Chambers of Commerce have not only the opportunity "but the responsibility to give high priority to a campaign of education and compliance" with standards and regulations for worker safety.

Safety's Viewpoint:

- "With this new program we are at last coming to grips with the rather large area which has up to now been outside the scope of our activities. In the long run this new approach should provide a valuable contribution in reduction of accident frequency to supplement the regulatory approach which has stood the test of historical experience."
- To be successful the new procedure must receive the support of management . . . by a practical appeal stressing the connection between accidents and production. Interruptions in production and personal injuries result from similar events, the methods of controlling production interruptions and personal injuries are the same, and the basic controls must be applied through supervisors and foremen.
- Four basic precepts of the consultive approach: 1. Investigate rather than inspect, 2. Consult rather than command, 3. Persuade rather than order, 4. Sell rather than enforce.
- "The individualized safety approach in which the supervisors share the total responsibility for safety training is superior to the committee approach in that it focuses responsibility for any individual operation where it cannot be shifted.

"However, supervisor responsibility must be based on his conviction that accidents are caused and that he **personally** can do something about preventing them.

"The role of the technical safety personnel must be that of performing a 'service function.'

"It is important that stress be placed on measuring safety improvements against the past records of the individual supervisor rather than to measure one supervisor's record against that of another."

- "Small business does not have many accidents in its individual establishments. Collectively, however, small business and industry contribute a disproportionately large part of the national accident toll. It is hoped that this conference

What Is the

Excerpts from the address by
***Isador Lubin*, New York State Industrial Commissioner**

". . . We in the Department of Labor are inaugurating a new safety program. We are venturing away from routine inspection safety procedures."

". . . Safety laws and safety inspectors address themselves to the tangibles of a situation. When the inspector arrives at a factory, he must answer such questions as: Are these proper guards on the machine? Are elevators safeguarded? Are there enough exits? Is there proper ventilation? Is bad housekeeping creating hazards?"

"The men who do this inspection work have carried out their assignments with distinction. But something has been lacking. . . .

"I think that what is lacking—what we have not been doing—is to pay enough attention to the human element. . . . A careful study of accident statistics reveals that many can NOT be prevented simply by enforcing the safety laws."

"There was a tendency for complete inspection coverage to become a major objective of safety programs. New York must have set some kind of record in 1953 and 1954. In both these years our field men inspected every one of the 100,000 factories and virtually all of the 135,000 mercantile establishments subject to the safety law."

"Under our new program we are going to divert some of this energy to the function of giving assistance to management in its over-all accident prevention program. . . . We don't mean to imply that safety leaders in industry ought to stress education and training to the exclusion of other methods of accident prevention. Good Engineering is essential, of course. Moreover, management can't reasonably appeal to employees to follow safe work procedures unless it is able to say, 'We are doing all we can to safeguard your physical environment.'"

"There is no substitute for our code rules and for enforcement . . . but we must face the fact that the vast majority—two-thirds—of all compensated industrial accidents at the present time in New

New Strategy?

York seem not to be associated in any way at all with conditions covered by law and code rules. **And probably only a small proportion of the remaining third of the cases can be blamed on actual violations of the safety law."**

". . . New York State has not entirely reduced to the vanishing point the injuries that could be corrected by mechanical improvements. We will center our efforts on industries and establishments that have the highest accident rates, rather than attempt blanket coverage of the entire field."

"Under our new program our field representatives assigned to the new special program will act as safety consultants, and not merely as law enforcers.

"With the cooperation of management, our inspectors will be ready to survey establishments, to identify and locate all hazards, not merely those that come within our codes. They will analyze and appraise a plant's safety program, if it has one. They will prepare . . . recommendations for the elimination of hazards and for organizing a safety program in individual plants."

"If management so requests, the safety consultant will follow closely the accident experience of the establishment . . . take an active part in the program . . . assist in conducting a safety instruction course for workers."

"For the time being . . . we plan to limit this 'consultive' program to selected industries and establishments . . . that stand to profit the most from the kind of service we offer. . . . We are not going to neglect establishments with high frequency rates, even though they are in industries that have not been selected for special attention. . . . Our safety representatives will encounter plants where insurance carriers have already initiated safety programs. And we have no intention of duplicating industry's effort where needs are already being met by such programs."

"We have begun to retrain a considerable part of our safety staff. We have selected foundries as the first industry for special attention . . . the largest employer of labor among the 25 industries with the highest accident frequency rates in New York State."

will inspire greater measures of accident prevention in small business in New York State. It can do this best by directing community attention to these problems."

Labor's Viewpoint:

• Labor can give a great boost to this drive for increased industrial safety. . . . The presence of safety clauses in union contracts underscores an awareness of both unions and companies of this challenging problem, but the absence of such a clause does not necessarily mean that hazardous working conditions are going unchecked.

"It may mean that the accident frequency rate is very low in that industry. It may mean that the employer has developed effective and well considered safety rules and regulations, and strictly insists on good safety practices, and therefore the union saw no need to ask for a safety provision in its contract. Or, it may mean that the customary grievance procedures in union contracts are being used as the forum for airing complaints about unsafe working conditions."

• "Labor will always be ready to cooperate with men of good will from management who believe, as we do, in the preservation of human life, and the prevention of human suffering.

"Management should not fear that cooperation with labor will encroach on its prerogatives. Again, the safety technician's recommendations should be heeded and made part of management policy. Likewise, valuable safety suggestions of labor unions should be viewed seriously and adopted as part of the whole safety picture. . . ."

• "We agree that a large proportion of the accidents now occurring are due to lack of knowledge. Proper education of the worker will go a long way in eliminating this cause of human suffering and waste of manpower—the industrial accident.

"May I also suggest having the field representatives assigned to the new special program consult with the worker, with the permission of the employer, as to his immediate safety problems and advise him accordingly."

Insurance Interest Viewpoint:

• "Using our statistical analysis section, we have set up controls which will immediately show when an individual risk in a low premium category is having a poor experience. As soon as one of these plants exceeds a frequency norm which has been established, service by our department is rendered."

• ". . . to a large degree we must take the lessons of the past but at the same time be unfettered in our thinking. Our horizons are broad, new and complex and our approach must be in kind."

• "The Workmens Compensation insurance industry has long felt the need for the type of a rounded safety program upon which the Department of Labor is now embarking. . . . Good accident prevention is good business for insurance companies."

Special Problem—The Construction Industry:

(Because of the high accident rate and the industry's specialized problems, it was agreed that a special conference on safety in building and construction should be called November 13.)

• ". . . every contractor has a basic organization which keeps his business alive, a nucleus around which each job organization is centered. However, the great majority of workers changes on every job."

"Every new job is different from the last job; every new job is almost like starting up a new busi-

ness with a new organization in a new location, often in a different city, under different conditions and with different sub-contractors. Even the contractor with a full scale safety program . . . must start all over again with the development of his safety program for the new job."

"There are several directions in which it is believed the Department of Labor could contribute to greater safety in construction work. One would be work with the unions representing the more hazardous building trades, since a structural iron-worker, for instance, continues to be a structural iron-worker throughout his working life, while, to most contractors, structural ironmen are on the job for a few weeks, after which he may never see those particular men again."

"Another promising direction would be analysis of accident-causes . . . and a pooling of know-how, so far as safety is concerned, so that safety may become a non-competitive factor, available to all."

"A third indicated step would be the modernization and broadening of application of the rules now existing relating to building construction, repair and demolition. A representative and competent advisory committee should be most helpful in this necessary improvement."

- State inspectors could be especially helpful on smaller projects where the size of the job does not warrant the hiring of specialists.
- "We in the building trades feel strongly that the industrial code relating to construction generally needs revising. Some of the provisions are obsolete and simply not applicable to modern construction methods. In other areas . . . coverage of the code rules should be extended."
- Due to conditions peculiar to the industry, accident frequency and severity in building and construction are more than three times as much as in manufacturing. . . . Injuries to workers other than those employed by the sub-contractor present some knotty problems. It is in this area that the State's safety inspection service can be of great assistance.
- Another improvement would be an increase in the number of construction safety inspectors to provide around-the-clock service.

Plant Maintenance & Engineering Conference

Smaller meeting groups to permit more intimate discussion of factory problems are planned for the eighth National Plant Maintenance & Engineering Conference to be held at the Public Auditorium, Cleveland, O., in January.

The conference, the largest industrial gathering of its kind in the country, attracts over 2,500 engineers each year and is expected to set a record attendance this January. Consequently, it was decided to run 10 conference sessions simultaneously so that the audience for each will be smaller.

As is customary, the conference will be held at the same time and place as the annual Plant Maintenance & Engineering Show. The conference will be held for three days, Jan. 28 to 30, inclusive, while the show will run for four days through the 31st.

The show also will be of record proportions this year with more than 400 companies exhibiting and the exhibit area topping the 100,000-square-foot mark for the first time. The show is now among the three largest annual industrial expositions in the country.

Ten sessions will be devoted to maintenance problems of particular industries. These include metal working, chemical, metal fabricating, and food processing plants; foundries; petroleum refineries; steel and textile mills; and paper mills and paper product plants, and rubber mills and rubber product plants.

Maintenance welding has been added as a new topic this year. Other sessions will cover preventive maintenance, maintenance cost controls, maintenance shops, maintaining materials handling equipment, painting, equipment replacement policies, labor relations, maintenance of equipment standards, maintaining electrical distribution equipment, lubrication, organization, yardsticks by which to measure the effectiveness of maintenance, training and education of maintenance personnel, maintenance in small plants, getting maintenance people to work as a team, maintenance in continuous operation plants, sanitation, maintenance of electrical rotating equipment and controls, and planning and scheduling.

All sessions, except the opening one and those devoted to single industries, will be repeated to permit visitors to choose the date of attendance, or attend different meetings.

Advance registration cards and hotel information may be obtained from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

Four Ways to Prevent "Wicking" of Hose

When the unprotected end of a rubber hose is placed in a liquid such as in a barrel of gasoline, "wicking" may occur that will shorten the effective life of the hose. The liquid will travel up the fibers of the reinforcement of the hose by capillary action similar to the action of kerosene traveling up the wick of the old-time kerosene lamp.

The liquid will attack and weaken the fibers for a considerable distance from the exposed end. "Wicking" may even cause the hose end to swell and eventually to fail. According to recommendations of field engineers of the Thermoid Company of Trenton, N. J., the simplest way to overcome "wicking" is to couple a length of metal pipe on the hose end long enough to prevent contact of the hose end with the liquid. The pipe should, of course, be inserted into the hose and not over the outside cover.

Another easy way to avoid "wicking" is to use a standard metal end protector which will seal the end against contact with the liquid.

A third possibility is the use of a liquid neoprene rubber compound which dries in a durable film over the end of the hose and prevents the entry of liquids into the fibers of the carcass.

A fourth possibility is dipping the end of the hose in shellac to form a film over the end of the hose. This is only good for water applications and should not be used with strong solvents.

SEALANT LOCKS METAL SURFACES

. . . So that Nuts, Bolts, Set Screws Won't Shake Loose

Locking nuts, bolts, and screws by a simple chemical method is now made possible by the use of a new plastic-type sealant. The sealant is said to lock ordinary threaded fasteners such as nuts and bolts, machine screws, and set screws so securely that no amount of vibration can shake them loose; and yet they can be removed with ordinary tools. Machinery designed for higher operating speeds and parts subjected to increased levels of vibration can be made more reliable through the use of this new method of lock-fastening, it is claimed. In spite of the use of mechanical locking devices such as lock washers and stop nuts, people are still plagued with the problem that mechanical equipment frequently falls apart in use. The nuts and bolts fall out and are lost and the trouble of replacing them far outweighs their cost.

This major innovation in the sealing and fastening fields was discovered in a college laboratory and is now commercially available.

The sealant is a clear, thin liquid which has the appearance of kerosene and hardens automatically when confined between the surfaces of closely fitting metal parts to form a strong heat- and oil-resistant plastic seal with a high shear strength. The catalytic action of the metal surfaces aided by the absence of air (which acts as a stablizer) causes the liquid to harden and form the tough plastic. This same material, however, will remain liquid for months in the original container, and for days as a film on the metal parts prior to assembly. The sealants are penetrating liquids which readily wick into the joint between a nut and bolt and harden automatically in 24 hours time to a strong, protective, plastic seal. Because these sealants are 100% active and contain no volatile solvent which must evaporate, they harden with little shrinkage. Threaded joints touched with a drop of the liquid sealant therefore become completely filled with an adherent plastic which locks them securely.

The sealant performs quite differently from other polymerizable compositions or other liquid fasteners. Paint, for example, is stored in kettles with the least amount of air. Then, when the kettle is opened, and the paint applied to the wall, it is exposed to air and either the solvent—if it is a lacquer paint—evaporates, or, if a linseed paint, the air hardens it. The sealant, on the other hand, must always be packaged with air. The bottles are just half full, and the depth of the liquid cannot be greater than about an inch. In this condition it is stable for many months, but let it get in between metallic surfaces where there is no air, and a metallic contact, and the liquid turns into a solid, locking the surfaces. If you paint a wall with the sealant, it will still be a liquid after a month has elapsed.

The lacquer types of cement contain solvents which must evaporate and harden from the outside in. They, therefore, take a long time to cure between vapor tight metal surfaces and shrink as they harden and without filling the enclosed space completely after curing.

Another type of chemical fastener is the epoxy type. They are excellent adhesives, but have a very different application. They begin to harden or cure from the moment they are mixed. They are thick sticky pastes and will not wick in by capillary action.

Metal fasteners can be treated with the sealant in large lots or individually. In the multiple application method, degreased fasteners are treated thousands at a time by briefly tumbling with the required amount of sealant. The sealant remains liquid until the fasteners

Photo shows woman operator applying sealant to mechanism of automatic coffee brewer.

are used in an assembly, when it hardens automatically. The tumbling method is extremely economical for small screws, as one 10 cc. bottle is sufficient to treat 1000 #10 machine screws. For larger fastenings, for non-continuous production operations and for maintenance, the workman puts a drop of the sealant on each critical fastening.

Set screws are an old and established means of fastening, but preventing them from loosening under vibration has always been a problem. When set screws in critical parts loosen, serious damage sometimes results. However, set screws treated with the sealant remain securely in place until loosened with tools. The material also locks aluminum fasteners without corrosion and without need to tighten up the fastener to the point where the threads sometimes strip in an effort to make them hold.

There are a number of other uses for these novel materials besides locking threaded fasteners. Because of its ability to penetrate into the tiniest pores and then harden automatically, it is suitable for the treatment of pump and compressor housings, pipe joints, and welds in vacuum and pressure vessels to render them leak-proof. Several companies are using the sealant instead of solder in mechanical joints in order to avoid the use of corrosive fluxes and the refinishing of parts which become tarnished from the heat of soldering. With the use of the sealant, the cold jointing of degreased metal parts, even if highly polished or enameled, is said to be fast and simple.

A source for further information about sealants can be obtained on inquiry to the Editors.

Wiring Developments

Following are summaries of some of the discussions at the annual four-day conference of the Wire and Cable Section of the National Electrical Manufacturers Association, which was held in Rye, New York, with 125 leading industrialists in attendance. A. D. R. Fraser, President, Rome Cable Corporation and Chairman of the Section, presided at the meeting. The Convention Chairman was B. F. Ilsley, Manager, Wire and Cable Department, General Electric Company.

A. R. Lee, Application Engineer, Construction Materials Division, General Electric Company (Glass Treated Silicone Generator Leads) —"Increasing demands for electric power in recent years has presented problems in utility and industrial plants where existing cables are no longer able to carry the additional loads required. Currently in new construction, space in many cases is at a premium and conventional insulations are not adequate from a temperature standpoint to carry the loads involved. In this connection, the Wire and Cable Department of the General Electric Company has conducted extensive tests on a cable utilizing G.E. SE-100 silicone rubber-coated glass tapes as an insulation. Such a cable is designed for operation at a rated conductor temperature of 125 Centigrade for voltages up to and including 15KV and possibly higher.

"Although cables constructed with silicone rubber-coated glass tape are relatively expensive compared to cables with conventional insulation, they may afford an economical solution to many of the problems referred to previously."

S. J. Rosch, Cable Consultant, Anaconda Wire and Cable Company (Cooperative Activities with Insulated Power Cable Engineers Association)--"Ever-increasing demands by the electrical industry for wires and cables capable of meeting new and unusual requirements made necessary through modern environmental factors and conditions, require a reappraisal of existing standards for insulated wires and cables. To meet this situation, the Insulated Power

Cable Engineers Association, in conjunction with NEMA, is studying factors involved in providing electrical conductors capable of meeting the foregoing requirements:

"The study will cover such categories as communications, control and high and low voltage cables made with a variety of old and new materials for installation underwater, overhead, in underground ducts, for direct burial in the soil and for the interior of residential and industrial buildings."

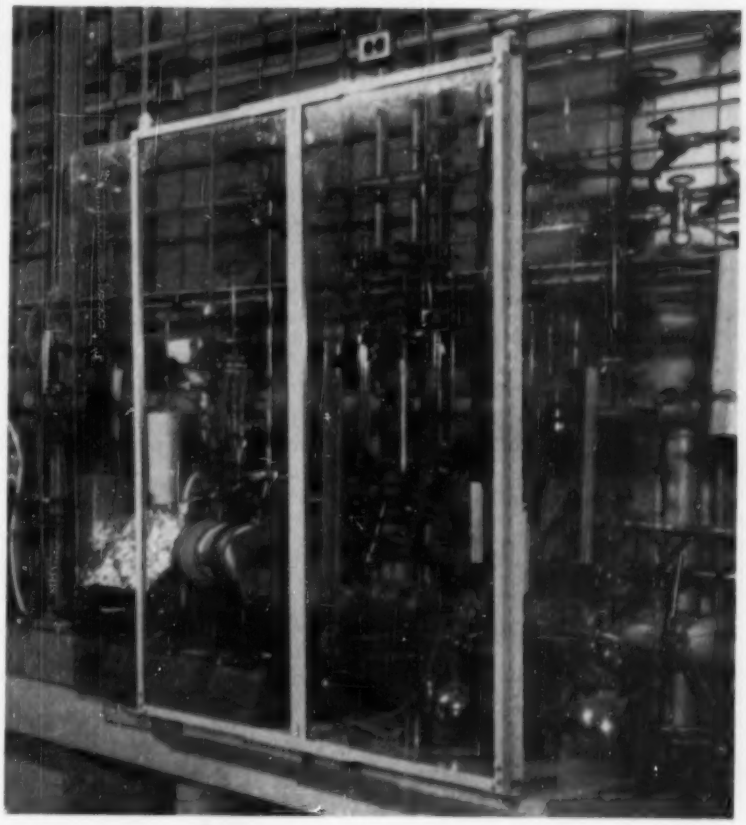
Dr. E. G. Sturdevant, Technical Director, United States Rubber Company (Developments of Molded Cable)—"Federal Mines regulations now require either a grounding conductor in a cable or an equivalent device for maintaining the frames of off-track mining machines in underground mines at ground potential. This requirement expires as of August 1, 1956, since a 'certified' alternate device now is available for 250 d-c circuits. The rather frequent breaking of the grounding conductor in parallel Type G cables has probably contributed to the development of the 'equivalent or alternate device.'

"A grounding conductor in the cable still is required on 500 d-c circuits, on all a-c circuits, and on hand drills not provided with contactor controls. The grounding conductor will still be required on 250-volt d-c circuits in those states having laws covering its use. Therefore, even though an alternate device has been developed, significant quantities of Type G parallel cables will continue to be required."

Howard H. Weber, Sales Manager, Electrical Wire and Cable Department, U. S. Rubber Company (Performance Tests on Flexible Cords)—"Underwriters' Laboratories, Inc., for some time, has differentiated between the types of flexible cords used for portable lamps and radios and those used for other electrical appliances. This view, however, has undergone a change and the Laboratories, several months ago, agreed to study a suggestion that cord application requirements be based on performance tests. This would lead to recommendations that cords would be related to types of appliances for which they are applicable.

"An initial report has been issued and it is hoped that, ultimately, the Laboratories will conduct performance tests which will cover cord applications for all types of appliances, rather than for the three types now listed."

A SAFETY IDEA

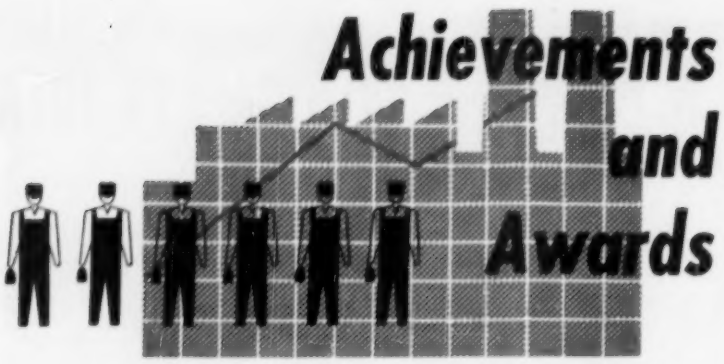


Laboratory Safety Shield

For easy and safe protection of laboratory personnel when they are exposed to glass apparatus being used under high pressure or materials of an unstable nature, the Petroleum Chemicals Research and Development Laboratories of the Celanese Corporation of America have developed these laboratory safety shields on tracks.

The shields are cellulose acetate laminated sheets 60" x 24" and ¼" thick. Wings are hinged for side protection. They are suspended by weights which allow the shields to be raised or lowered to any position.

A track is provided for horizontal movement. Brackets and supports are made of Unistrut frame work attached to standard laboratory racks.



The National Safety Council's Award of Honor has been presented to the Radio Corporation of America for outstanding company-wide safety performance at RCA manufacturing plants during 1955.

Presentation of the Award was made to Brigadier General David Sarnoff, Chairman of the Board of RCA, at Governor Averell Harriman's Dinner at the Sheraton-Ten Eyck Hotel for participants in the Governor's Worker Safety Conference, convening for the first time at Albany. General Sarnoff, who as Chairman of the Governor's Industrial Safety Advisory Committee, presided at the dinner, mentioned in accepting the Award of Honor:

"I have been advised that simultaneously with notification to us of this Award, information reached us that eleven individual RCA manufacturing locations had earned separate awards from the National Safety Council."

The Award of Honor was earned by RCA by reduction in accident frequency by 51 percent in 1955, as compared with the RCA average during the previous three years. It also was stated that RCA had succeeded in reducing accident severity by 52 percent in 1955, as compared with the previous three years.

Of the eleven awards presented separately to individual RCA manufacturing locations, five were the Award of Honor and the remaining six received the Award of Merit.

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The National Noise Abatement Council, during the Seventh Annual Noise Abatement Symposium, presented its first award for leading educational contributions to the field of noise control to Dr. Haldon A. Leedy, director of Armour Research Foundation.

• • •

In recognition of 1,771,640 man-hours of work with only 5 injuries, only 52 "lost" days and no permanent disabilities, Edwin Hogan, sewer contractor, of Rockford, Illinois, has been awarded a bronze plaque for "achievement in accident prevention" by the concern's underwriter for workmen's compensation and public liability insurance.

The Hogan company's safety record spans a 5-year period, during which its accident frequency rate was 2.8 accidents per million hours worked, as compared with a national rate of 16.72 for the construction industry. The severity rate was .29 days lost per thousand hours worked, as compared to the national rate of 2.28.

• • •

An award for setting an airframe industry safety record of 5,917,415 man-hours of work without a lost-time accident was given to Republic Aviation Corporation by the company's employee insurer. For 73 days there were no accidents in the Farmingdale, Port Washington, Hicksville or Greenlawn, N. Y., plants of the company that turns out fighter-bombers and photo-reconnaissance planes, for the U. S. Air Force.

Mundy I. Peale, president of the aircraft company, who received the award for Republic declared that "safety is no accident at Republic" but rather the culmination of an intensive 16-year program which has brought about a steady decrease in the accident rate. He pointed out that in 1954 the company's accident rate was 2.05 per million man-hours but that in 1955 this was reduced to 1.70 while during the first six months of 1956 it had dropped to .91 per million man-hours.

• • •

Thirteen associations received the National Safety Council's Award for Association Safety Activity at a special luncheon for association executives held during the National Safety Congress in Chicago. The associations were honored for better-than-average progress in accident prevention and for excellence and balance in their safety programs.

David L. Arm, director of industrial safety for the Council, presented plaques to the 13 winners: British Columbia Lumber Manufacturers Association, Can Manufacturers Institute, Inc., Education Council of the Graphic Arts Industry, Gypsum Association, Institute of Scrap Iron and Steel, Inc., Manufacturing Chemists' Association, Mississippi Manufacturers Association, National Tool and Die Manufacturers Association, Pennsylvania Manufacturers' Association, Portland Cement Association, Trumbull County Manufacturers Association, Western Oil and Gas Association, Wisconsin Canners Association.

The Association Award recognizes outstanding safety activities including publicity, safety contests, the publication of safety materials and cooperation with other agencies. The 1956 contest involved associations representing twenty thousand firms, of which fifteen thousand were in the small business category, and a total of two million workers.

• • •

Two chemical companies were presented with the prized Lammot du Pont Safety awards at the annual meeting of the Manufacturing Chemists' Association. The awards are made annually to the chemical companies showing the greatest improvement in plant safety over a five-year period.

The winner among those companies whose employees worked more than 2 million man-hours annually was Pittsburgh Coke & Chemical Company (Pittsburgh, Pa.). For firms with less than 2 million man-hours annually, the award was presented to Oronite Chemical Company (San Francisco, Cal.).

The chemical industry, one of the safest in the country, set a new all-time safety record in 1955 with lost-time accidents in the industry reduced to 3.25 per million man-hours worked. This is slightly more than one-fourth the preliminary 12.6 per million man-hours worked figure for "all manufacturing" as reported by the Bureau of Labor Statistics.

• • •

Three National Safety Council awards for outstanding performance in reduction of lost-time accidents and two more from Liberty Mutual Insurance Company for long periods of continuous performance without disabling injuries were presented to Carrier Corporation.

Top honor is a National Safety Council "Award of Merit" for the calendar year 1955 in which the Syracuse divisions of Carrier established a record of 3.69 lost-time accidents per million man-hours of work. So far in 1956 Carrier is setting an even better record of 1.62 in its Syracuse plants and offices.

A second "Award of Merit" is for completion of 1,886,483 man-hours without any lost-time accidents, from December 2, 1955 to February 18, 1956.

The third Council citation is awarded to the Unitary Equipment Division, Thompson Road, for completion of 1,380,033 man-hours without a lost-time accident from May 14, 1955 to February 8, 1956.

The insurance company citations were to the Machinery Department, Machinery and Systems Division, and the Compressor Department, Unitary Equipment Division.

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Ten Pittsburgh Plate Glass Company industrial units and two plants of the Columbia-Southern Chemical Corporation, its wholly-owned subsidiary, have been cited for National Safety Council awards for outstanding safety performances during 1955, Thomas R. Donoghue, manager of plant safety and protection, announced.

Mr. Donoghue reported that Pittsburgh Plate's Ford City, Pennsylvania, Works 4 and Works 6 employees received the "Award of Honor," the top safety citation offered by the Council. Works 6 employees were awarded the honor for completing a 2½-year period without a disabling accident, totaling 4,202,500 man-hours.

Works 4 was recognized for achieving a low frequency of accident rate. In 1955, the plant posted 4,335,558 man-hours during which four lost-time accidents occurred, resulting in a frequency rate of .9 for every million man-hours worked.

Other company units recognized for National Safety Council citations were:

WISE TO CHOOSE
SAFE TO USE
THOSE IN THE KNOW
. . . PREFER
Install K-LENS-M Lens Cleaning and Anti-Fogging Stations for clean, clear vision . . . for all types of safety eyewear, glass or plastic.
More Efficient—Lower Cost
Send company letterhead for FREE sample and complete information.
K-LENS-M
The Acknowledged Leader in the Lens Cleaning Field
The WILKINS Co., Inc.
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(For details, use Key # Y-10 on card on page 35)

Award of Merit: Creighton, Pa., Glass Division Research; Crystal City, Mo. (glass); and Columbia-Southern plants at Barberton, Ohio (limestone mine), and Natrium, W. Va. (chemical).

Certificate of Commendation: East Point (Atlanta, Ga.) Paint Division; Torrance, Calif., Paint Division; Portland, Ore., Paint Division; and Springdale, Va., Paint Division.

President's Letter: Morck Brush Division, San Francisco, Calif., and Springdale, Pa., Paint and Brush Division Research Center.

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Six national and regional honors were awarded to Bayuk Cigars Inc., in recognition of record-breaking safety achievements. The firm and its employees received the Award of Honor of the National Safety Council for running up a 1955 record of over 4,000,000 continuous man-hours' production without a disabling injury in its Philadelphia plant.

Bayuk also was awarded a plaque of the National Safety Council for winning top honors in the Council's food section safety contest.

Employees of Bayuk's Philadelphia and Lancaster plants were also given an honor award of the Philadelphia Safety Council and added tribute was paid to the Philadelphia plant's safety record when the Council presented its "Best in Tobacco Industry" plaque for Delaware Valley companies.

Employees of Bayuk plant No. 2 at York received the Philadelphia Safety Council's certificate of achievement for having made a 10 percent reduction in the plant's accident frequency rate in 1955.

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Brea Chemicals, Inc., subsidiary of Union Oil Company of California, was presented the National Safety Council "Award of Merit." The presentation was made at the plant in Brea, California.

This, the fifth safety award that Brea Chemicals, Inc. has received during 1956, was presented for the completion of more than a million man hours without a reportable injury. The record covered 932 calendar days and a total of 1,166,378 man hours, dating back to the start of company operations.

• • •

Celanese Corporation of America was honored recently by American Motorists Insurance Company for accident-free operations at its plants in Belvidere and Newark, N. J. A safety award was presented to Celanese executives for records of more than four million man hours without a single lost-time accident at the Newark plant and more than one million man hours without accident at Belvidere.

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Sol r Electric Co. of Cicero, Ill., was recently honored by Lumbermens Mutual Casualty Co. for its record of two million man hours without a lost-time accident. The award was for a 33-month period of accident-free manufacturing.

• • •

The Annual North Carolina State Truck Safety Awards were presented recently to 28 Tarheel trucking companies by the North Carolina Motor Carriers Association. The highest award, the "State Truck Safety Trophy," was won by Carolina Delivery Service Company, Inc., of Charlotte.

These special recognition awards are part of the state trucking industry's continuing safety program, conducted by the Safety and Personnel Council of the North Carolina Motor Carriers Association, in cooperation with Trailmobile Inc., and the American Trucking Associations, Inc.

Winners in 15 divisions were selected on the basis of overall safety on the highways, courtesy of drivers, personnel training, equipment and equipment maintenance, among other factors.

• • •

A record of 14 years work without a lost-time injury has been achieved by the mold loft workers of the Engineering Works Division of Dravo Corporation. The record covers the period from June 15, 1942 to June 15, 1956.

Floor Load Capacities

Many companies are failing to make maximum use of their structures because of a mistaken concept of the load-carrying capacity of their floors.

This is the opinion of R. W. Sauer, supervisor of the structural analysis section at Armour Research Foundation of Illinois Institute of Technology, Chicago.

Sauer said at an interview that ARF engineers have found that many structures can be used for modern purposes or reconverted to fill better needs, without overloading, if proper use is made of the existing structure.

"We are not advocating overloading," Sauer declared. "What we are aiming for is safe loading and we base our theory on the simple idea that structures, as built today, have more strength than designers give them credit for."

Many companies are being handicapped in speeding the flow of materials in their warehouses because they aren't sure the floors will support heavy moving equipment. Other structures—such as bridges, ore bridges, and the like—are required to support loads for which they were never designed or may be overstressed because of deterioration, the structural engineer stated.

The development of modern equipment, particularly the fork lift truck, has helped considerably in facilitating the movement of materials. But the advantage of using such equipment, Sauer pointed out, has in many cases been precluded by the low estimated floor load capacity of many existing warehouses.

Studies conducted recently during a project in the warehouse of a Chicago meat packing firm will enable the company to save annually about seven times more than the cost of the project merely by using heavier lift trucks.

The purpose of this study was to ascertain the maximum safe allowable floor loads. The result was that engineers found the floors could safely support more weight than was previously considered advisable.

Another study was made for a steel company which was afraid

it was overloading its ore bridges. The findings revealed that two of the five bridges in use were considerably overstressed and ARF engineers suggested their use be limited until repairs could be made.

The engineer said that in these investigations engineers seek to determine three things:

1. Impact of a moving load on the structure.

2. The absorption of this impact by the structural frame.

3. The restraint or interaction of different segments of the structure with one another.

In their studies, Sauer pointed out, engineers conduct physical tests of the units under investigation in actual operating conditions. Deflection measurements are made with dial-type gages; strain measurements are made with electrical resistance gages.

During the investigation for the meat packing company, Sauer reported, engineers removed four joists from the floor and tested them in the Foundation's materials testing laboratory in order to thoroughly examine the materials in the structure.

"The designer's common assumption that one joist carries all of the concentrated load is questionable," Sauer commented.

One important use of these tests, he pointed out, could be the development of a structural design that takes cognizance of the cooperative interaction of the floor decking with the remainder of the structure, and the relative deflections of girder and joists.

6-Month Injury Rates

The all-manufacturing injury-frequency rate for June was the lowest ever recorded for the month—12.0 for each million employee-hours worked—according to preliminary reports compiled by the U. S. Bureau of Labor Statistics. This brought the rate for the second quarter to 11.9, a new low for the period. The average for the first 6 months was 11.9, slightly higher than for the first half of 1955 but fractionally below 1954.

At the 1956 mid-year point, 106 of 135 industries were holding injury rates to the 1955 level or below. For 38 of these, the half-year averages were lower by 1 full frequency-rate point or more. Only 29 industries reported significantly higher rates.

Great improvement over the year occurred in the plywood mills industry, where the 6 month rate dropped from 31.1 in 1955 to 22.6 in 1956. An equally impressive decline, the Department of Labor said, was in the compressed and liquefied gases industry, down from 13.0 to 5.4.

The Bureau of Labor Statistics reported that 19 industry classifications had average injury-frequency rates of less than 5 for the first half of 1956, compared with 14 in 1955. The most outstanding records were: Synthetic fibers, 1.8; miscellaneous communication equipment, 2.0; synthetic rubber, 2.1; aircraft manufacturing, 2.5; miscellaneous industrial organic chemicals, 2.6; explosives, 3.3; radio tubes, 3.4; tires and inner tubes, 3.6; electric lamps (bulbs), 3.6; optics and lenses, 3.6.

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(For details, use Key # Y-11 on card on page 35)

Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

MEMBER . . . . . .
Master Superior Court, New Jersey American Bar Ass'n, New Jersey Bar Ass'n, Chairman, Committee on Workmen's Compensation, New Jersey Bar Ass'n National Federation Insurance Counsel Past Commander, American Legion, Post 10, ... Newark, N. J.

ORAL CHARGE TO JURY—Statute of Limitations

A claimant was properly awarded $4,000 damages for paint or lead poisoning resulting from spraying trailers in an enclosure not properly ventilated, though it was contended that an oral charge by the court to the jury after they had failed to arrive at a verdict was in error. It was found that the charge, which was simply a statement that medical testimony for any injury or damage occurring more than one year prior to the date of filing of suit was barred by the statute of limitations, was not conflicting or misleading.

DORSEY TRAILERS, INC. VS. SUTLEY, Alabama Supreme Court. No. 4, Div. 827, Dec. 22, 1955.

EMPLOYER'S NEGLIGENCE—Failure to Warn Employee of Fumes

The claimant was properly awarded damages for injuries suffered when he fell upon the bottom of his employers' swimming pool, apparently overcome by fumes from a cleaning acid he had been using on the pool. The claimant was a "yard man" around various residences and occasionally cleaned out the swimming pool for this employer. The employers, husband and wife, had purchased some muriatic acid for the claimant to use in cleaning out the swimming pool and the claimant had used it several times before the accident occurred. The claimant's chemist witness testified that the gases emitted by the acid have a corrosive effect on the eyes and that the plaintiff's fall could have resulted from this. The employer's counsel argued that there was insufficient evidence to show that the acid caused the accident and that the employer had no duty to warn the employee since he was left to work by his own methods. The court ruled that the evidence indicated that the acid caused the fall and that the employers knew the dangerous nature of the acid and the employee did not. Affirmed.

DONAHOE VS. MOULTON, Oklahoma Supreme Court. No. 37223. July 17, 1956.

FAILURE TO COMPLY WITH SAFETY REGULATIONS—Employment Relationships

An electrician, injured when he tripped and fell down the unfinished metal stairway of a building under construction, was properly awarded damages against the contractor and building owner since their failure to install wooden treads as required by the labor law constituted negligence and a proximate cause of the accident. The employer contended that the claimant was not an employee, that it was not the contractor's duty to install the wooden treads, and that the employee was guilty of contributory negligence in using the stairway before the wooden treads were installed. The court ruled that the claimant was an employee of a subcontractor and the employer was responsible for his safety, that the builder and contractor could not delegate their duty to furnish a safe place to work, that the claimant was not guilty of contributory negligence in using the stairway, since it was the easiest method of access to his work, and the employers were guilty of negligence per se in failing to install wooden treads. Affirmed.

ATHERLY VS. MACDONALD, YOUNG AND NELSON, INC., California District Court of Appeal, First District, First Division. No. 16, 740. June 27, 1956.

MINOR ILLEGALLY EMPLOYED—Question of Parent's Knowledge

The parents of a deceased 17 year old, illegally employed in a hazardous occupation, were properly denied damages where the weight of the evidence indicated that the boy died of natural causes and that the decedent and his father told the employer that he was 18. At the time of his death the decedent was helping to straighten a steel beam by a mechanically operated hydraulic press which had no electric connection but was near a wholly separate, electrically operated rolling machine. The parents maintained that they did not know that the decedent was engaged in hazardous work and had not given their consent; but the employer, and a previous employer, testified that the father said his son was 18. The father had visited his son's place of employment at least once and worked within 500 feet of him. The jury was instructed to find for the employer unless the decedent's parents "consented to or knowingly suffered and permitted" him to work. The jury found for the employer and the court ruled that the evidence supported the jury finding. Affirmed.

RIDDELL VS. BERRY, Kentucky Court of Appeals. May 4, 1956.

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INSIDE PAGES
(pages 2 and 3)

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from the CARELESS ACTS of others the WISE MAN corrects his own
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As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE & PRODUCTION. To obtain copies write in the key numbers on the free-postage card below.

MATERIALS HANDLING

Slings 201
Macwhyte Co. Slings having approximate breaking strengths of 1,000 lbs. to 243.4 tons are listed, with safe loads shown in tons for various angles of use, in this illustrated folder. The slings are available in many styles, custom-made in any length or capacity required.

Wire Rope Endings 202
American Chain & Cable Co., Inc. Wire Rope Sling Dept. 4-page folder describes a line of wire rope endings through typical application photographs. The endings are said to be safer to handle because they are permanently anchored under steel collars.

Hand Trucks 203
The American Pulley Co. A line of hand trucks designed to handle loads safely and efficiently up to 650 lbs. is described in this 4-page brochure. Specifications are furnished and typical applications are illustrated; these include warehouses, delivery firms, industrial plants, etc.

FLOORING & MAINTENANCE

Floor Maintenance Equipment .. 204
Hild Floor Machine Co. Illustrated catalog describes a line of maintenance equipment for use on all types of floors, and includes floor machines, vacuums, rug and upholstery cleaning machines, etc. Specifications, applications, construction details and available attachments are also given.

Floor Dressing 205
Masury-Young Co. A non-wax floor dressing that is slip-resistant, easy to apply and requires no machine buffing. It is intended for asphalt tile, rubber tile, linoleum, vinyl, sealed wood, terrazzo, concrete, and other resilient and non-resilient floors.

Non-Skid Gratings & Treads 206
Reliance Steel Products Co. 6-page brochure explains a line of abrasive-surfaced gratings and treads that combine the advantages of open flooring and sure footing. The illustrated brochure contains construction details, test data on the abrasive coating, and a safe load table to aid in ordering.

Stair Treads 207
Wooster Products, Inc. Specifications and applications for abrasive-surfaced cast metal and aluminum stair treads are given in this illustrated brochure. The aluminum treads are available with a high-visibility, red stepping line for added safety.

FIRST AID & HYGIENE

Acid Burn Treatment 208
E. D. Bullard Co. Illustrated bulletin describes a liquid treatment for acid burns to counteract the destructive action of acids and alkalis. Several other first aid materials are also featured, including plastic bandages, insect repellents, etc.

Protective Hand Cream 209
Dome Chemicals, Inc. A protective hand cream that is also an effective healant for the treatment and prophylaxis of dermatoses is featured in this 8-page folder. Includes information on the natural protective action of the skin and a discussion of the maintenance of a healthy pH value.

Skin Protection 210
The Chemical Corp. A line of skin protective creams, waterless cleaners and work lotions is catalogued in this illustrated brochure. Also featured is a handy dispenser that can be used for several of the products.

LADDERS & SCAFFOLDS

Ladder Safety Device 211
Safety Tower Ladder Co. An automatic ladder-attached safety device to prevent ladder workers from falling. The illustrated folder explains in detail the employment, operation and specifications of the belt-worn device.

Ladders 212
W. W. Babcock Co., Inc. 8-page catalog features a wide variety of wooden ladders, safety shoes, ladder locks, etc. Includes specification data, recommended usage and price information.

Step Ladders 213
The Ballymore Co. Castered step ladders, many models of which are equipped with hand rails for added safety, are catalogued in this illustrated brochure. The ladders are available in several styles and working heights, and all feature an automatic braking device to prevent rolling when in use.

DUST & FUME CONTROL

Combustible Gas Alarm 214
Johnson-Williams, Inc. A portable, audible alarm unit to detect dangerous amounts of combustible gases is described in this illustrated bulletin giving operational and construction data, application suggestions, etc. The unit employs an aspirator bulb and sample hose for exploratory testing from outside a confined danger area.

Air Pollution Control 215
Homsee Associates. A description of the scientific methods available for the study of air pollution problems is given in this highly-

(Continued on the next page)

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Free Bulletins (Cont'd)

informative brochure. It includes discussion of pilot scale research, testing and design; tall stack dispersion analyses; new plant survey; dust collector and fly ash arrestor acceptance testing, etc.

Welding Fume Collector 216
Ruemelin Mfg. Co. Detailed information on a welding fume collector that functions at the source of fumes is featured in this illustrated folder. A dimension table, working diagrams and illustrations complement the informative text.

FIRE PROTECTION

Fire Extinguishers 217
Badger Fire Extinguisher Co. A full line of fire extinguishers to solve every fire problem need is illustrated and described in this 8-page brochure. Recharges for all types are featured, including a disposable CO_2 cartridge recharge.

Flame Retardant Compound 218
E. I. duPont de Nemours & Co. Descriptive booklet on a water soluble, flame retardant compound for treating many fabrics and papers. Treated materials protect against the spread of flame, and use of the compound is said not to alter the color, texture, hand or tensile strength of most fabrics. Booklet includes swatches which may be tested.

MAINTENANCE

Non-Flammable Cleaning Solvent 219
Harry Miller Corp. 12-page booklet describes a non-flammable, non-toxic solvent that cleans, degreases and rust-proofs metal. The solvent may be applied by wiping or spraying; small parts may be basket-dipped in a hot or cold bath solution.

Dye Penetrant Inspections 220
Turco Products, Inc. The dye penetrant method of flaw location is fully explained in this 4-page folder. Also contained is a "dwell time" chart detailing recommended penetrating times for various types of materials and suspected defects at various temperatures.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers' literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
109A	Vehicle Safety Belts
110	Safety Gloves
111	Foot Protection
112	Anti-Slip Soles
113	Oil-Proof Soles
114	Welding Helmets
115	Welding Curtains
	FIRST AID AND PERSONAL HYGIENE
120	Protective Skin Cream
121	Skin Cleansers
122	Sanitary Drinking Facilities
123	Athlete's Foot Control
124	Salt Tablets
125	Noise Analysis & Control
126	Antiseptic Medication
127	Burn Medication
128	First Aid Kits & Supplies
129	Stretchers & Litters
130	Resuscitators
131	Eye Wash Fountains
	DUST & FUME CONTROL
136	Dust & Fume Collectors
137	Carbon Monoxide Control
	FIRE PROTECTION
141	Safety Cans
142	Extinguishing Ash Tray
143	Safer Solvents
144	Degreasing Machines
146	Fire Blankets

Key Number	Subject
148	Watchmen's Control Systems
149	Fire Resistant Hydraulic Fluids
	LIGHTING EQUIPMENT
150	Alarms & Warning Lights
151	Explosion-Proof Lights
152	Electrical Insulation Tester
153	Fluorescent Lamp Guards
154	Emergency Lights
	MAINTENANCE
160	Anti-Slip Floor & Mats
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Cleaning Machines
164	Oil & Grease Absorbents
165	Paints
166	Floor Resurfacing Materials
167	Concrete Finishing & Cutting Machines
168	Dust Removing Vacuums
169	Ice Removers
	LADDERS & HANDLING
170	Ladders & Safety Devices
171	Scaffolds
172	Work Platforms
173	Slings
173A	Safety Hooks
173B	Fork Truck Steering Aid
	GUARDS
174	Acid Pumps
175	Machine Guards
176	Power Press Feeders
	EDUCATIONAL AIDS
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WHAT'S YOUR PROBLEM?

Car Safety Booklet

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Although only 16 pages, the booklet includes a great deal of information about cars and their operation, the rules of the road, maintenance check-points, driving limits, how to park, how to change a tire, and safety facts that every driver should know. Among the new material is a section on what to do in an emergency.

The booklet makes use of a new style of visual presentation, using key words and illustrations to get across essential facts without the necessity of reading text.

The booklet, according to the publishers, has been successfully used by safety and law enforcement groups, driving schools, and others, and is available in quantity lots at substantial discounts from the single copy price of 15 cents.

Maintenance Techniques

The most comprehensive report on modern practices in plant maintenance and engineering is contained in "Techniques of Plant Maintenance & Engineering—1956," published recently by Clapp & Poliak, Inc.

The book reports proceedings of the conference held with the Plant Maintenance & Engineering Show and contains the text of 16 papers, summaries of 15 roundtable discussions and answers to approximately 1,100 specific questions.

"Reports from the maintenance field indicate the growing influence of the maintenance manager in top management councils when new plants are designed, when equipment purchases are contemplated, when new production layouts are under way. Inevitably, too, his influence must increase still more as plants adopt automation, and excessive downtime becomes a luxury no plant can afford," the editors state.

This year's book, seventh in the series, is the broadest in scope. The 248 pages include 110 illustrations, charts and tables.

Given Special Attention

Five industries get special attention. These include air transport shops, chemical plants, petroleum refineries, paper mills and paper product plants, and textile mills.

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The book may be obtained from Clapp & Poliak, Inc., producers of the show and conference, 341 Madison Ave., New York 17, N. Y., for $10 postpaid.

At the request of a great many of our readers,

SAFETY MAINTENANCE has prepared a limited quantity of

REPRINTS

of the complete series on

NOISE CONTROL

that ran in our June, July, and August issues.

These three articles by Laymon N. Miller, **Does Noise Affect You and Your Work?, Noise Levels, Actual and Desired,** and **Noise Control in Industry,** represent a complete, authoritative, experience-grounded **survey** of the many factors involved in a problem that is of increasingly great concern throughout American industry. Comprehensive and detailed, they are at the same time concrete, clearcut, easy-to-follow, and profusely illustrated.

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Please send me ..... copies of the 24-page pamphlets containing the complete text of all three of your recent articles on Noise Control. (Checks, please, with all orders for $2.00 or under.)

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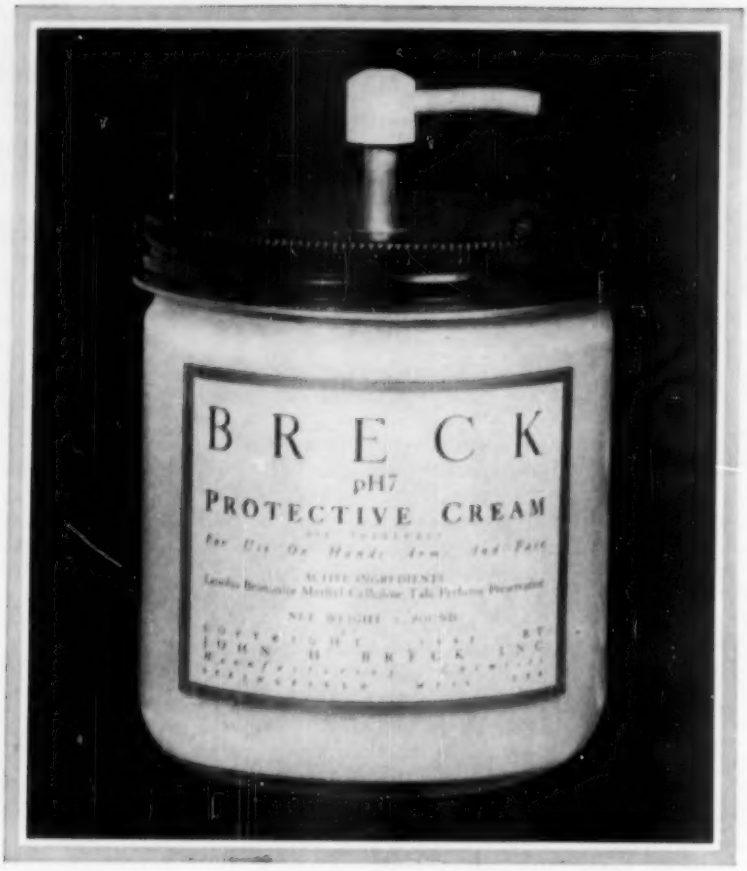

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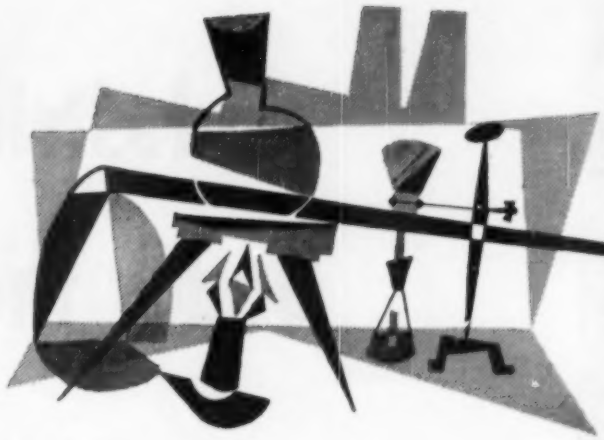
(For details, use Key # Y-1[illegible] on card on page 35)



industrial hygiene

Radiation Units and Protection

Edited in cooperation with
OCCUPATIONAL HEALTH INSTITUTE

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INDUSTRIAL MEDICAL ASSOCIATION

Important decisions relating to the measurement and safe use of radiations were announced at the triennial meetings of the International Commission on Radiological Units and the International Commission on Radiological Protection, both of which were held in Geneva, Switzerland. In a move to achieve greater international uniformity of X-ray measurements, the ICRU initiated a project in which basic equipment, to be developed by the National Bureau of Standards, will be loaned to countries which lack primary standards of their own. The principal outcome of ICRP deliberations, on the other hand, was a revised set of recommendations for permissible levels of ionizing radiation to which human beings may be exposed. Another highlight of the ICRU meetings was a discussion of problems raised in translating measurements made in roetgens to the newer unit of absorbed dose, the "rad."

Radiological Units Commission

The ICRU has been in active existence since it was established by the first International Congress of Radiology in 1925. Its major objective is the establishment of units of radiation dosage for use in medicine and biology, and in this field it has set the world pattern for over 30 years. At the same time, it deals with special problems of radiation measurement in both clinical and biological applications, and establishes the necessary nomenclature and descriptive procedures in regard to radiation doses.

Problems facing the ICRU have become increasingly complex as radiation energies have moved to higher and higher values, and as other ionizing radiations requiring measurement, such as neutrons, have been introduced. An important step in advancing the common base for all radiation measurements was taken in 1953 with the introduction of an energy unit of measurement called the "rad." The rad, equal to 100 ergs per gram of irradiated matter, for the first time expresses radiation dose directly in terms of basic physical units. Determination of dose in terms of the older unit, the roetgen, involves only ionization measurements, and the transition to the techniques of energy measurement has been difficult. Much of the recent meeting was therefore devoted to developing background material needed to make energy measurements more practical under clinical and experimental conditions. The forthcoming report of the Commission will not only contain this extensive body of material, but also the physical and numerical factors needed to convert ionization measurements made with conventional instruments to energy measurements applicable to radiation absorption in tissue.

It was brought out at the ICRU meeting that few countries have primary standards of X-ray dosage with the requisite range and accuracy. Though in the recent or distant past intercomparison of primary standards have been made between the United States, Great Britain, Sweden, France, Germany, and Canada, a great many other countries that use X-rays and gamma rays from radioactive nuclides are without the benefits of central national laboratories. To improve this situation, the Commission recommended that a secondary X-ray standard be developed and constructed which can be loaned to other countries for the calibration of their working standards which in turn are used to control radiation measurements in their hospitals and research institutions.

The National Bureau of Standards was asked to undertake this program and has agreed to do so. The plan is for the Bureau to construct a suitable cavity ionization chamber which can be calibrated over a wide energy range against the NBS primary standards. To control the measurements of the ionization chamber, a standard capacitor will also be provided. The

(Continued on page 42)

Step shown above is the collecting of dust particles in an impinger.

industrial

under the

. . . reveal health hazards of exhaust

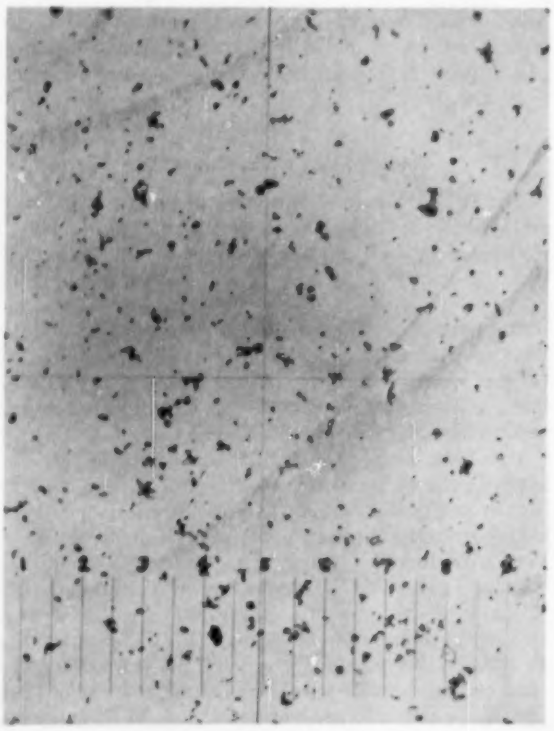
by **GERMAIN CROSSMON**
Industrial Hygienist
Bausch & Lomb Optical Co.
Rochester, N. Y.

The microscope is the chief instrument used by the industrial hygienist for determination of the particle size of dusts, for counting the number present in air and for identification of the type of dust.

Determination of Particle Size

Determination of particle size is important since small particle size dust most readily reaches the alveoli (air cells) of the lung. Animal experimentation and microscopic examination of autopsied lungs of animals and humans show that the particle size of the dusts in the lung air cells is less than 10 microns (1/2500 of an inch) in diameter, the greater percentage being between 1 and 5 microns. Large particle size dust approximately 100 microns and greater, of a size that is visible to the naked eye, unless held in suspension by turbulent air movement, rapidly settles out of air. The smaller size dust particles breathed into the nose are trapped to a large extent by the coarse hairs guarding the entrance to the nose. The trachea (windpipe) and the bronchi (branches of the windpipe) also are lined with hairs called cilia which are microscopic in size. Dust particles deposited on the walls of these tubes are carried back toward the pharynx by the wave like motion of these microscopic hairs, also by the coughing reflex. Small particles not trapped by the cilia gain entrance to the lung air cells. These dust particles, mainly 5 microns and less, are small enough as to be engulfed by phagocytes (white cells). These phagocytes carrying the dust particles either pass up from the lung air cells to the bronchi and windpipe where they are discharged as a result of the cough reflex or are carried away by the lymphatic circulation. If the amount of dust reaching the lung air cells is so great that the phagocytes cannot carry it away, lung disease eventually results. This is especially true in the case of the more toxic dusts such as the various forms of silicon dioxide causing silicosis, lead compounds resulting in lead poisoning and certain beryllium compounds, the causative agent of acute pneumonitis and berylliosis.

Measurement of the size of dust particles observed under the microscope is usually done by means of a



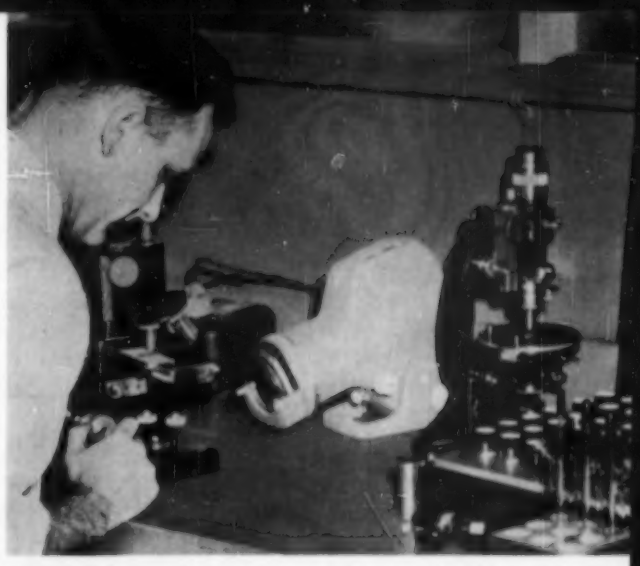
Size of dust particles is being determined here by use of micrometer.

dusts

microscope

and the efficiency

ventilation

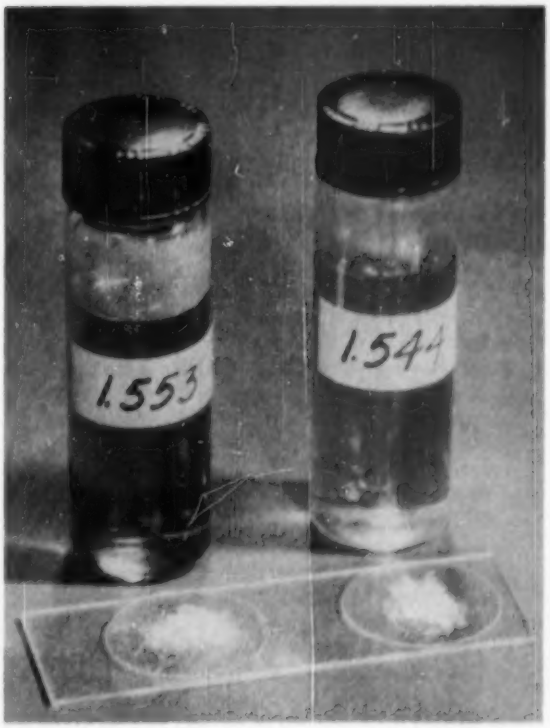


Equipment for counting, measuring particle size, identification of dust.

circular glass disk called a micrometer located in the eyepiece of the microscope. By comparison of the divisions of known size engraved on the micrometer with the dust particles on the microscope slide their size can be determined.

Counting Dust Particles

A glass tube called an impinger is used to collect dust at the approximate breathing area of the worker. Dust particles collected are counted under the microscope to compare the number per cubic foot of air with the "Threshold Limit Values". These values are the maximum average atmospheric concentration to which workers may be exposed for an 8 hour period without injury to health and are adopted yearly by the American Conference of Government Industrial Hygienists. They are based on the best available information from industrial experience, from experimental studies and when possible from a combination of the two. Determination of the number of dust particles is ordinarily done by placing a measured amount of the dust sample collected in a Sedgwick-Rafter Cell or a blood counting chamber and counting the particles with a bright-field microscope. Recent investigations have shown that by using a phase microscope, dust particles can be more distinctly seen and accurately counted with less fatigue than by the usual bright-field method.

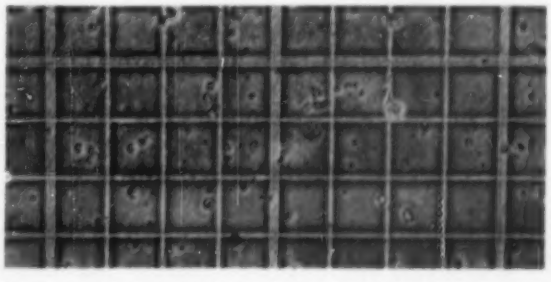


Testing dust for sand in liquids of refractive indices 1.544 and 1.553.

Dust Identification

Identification of the dust is necessary in order to determine if the operator is exposed to dusts which are considered especially hazardous or to dusts believed by some investigators to be harmless in small amounts. Identification is usually made by examination of the dust with the bright-field microscope in liquids of a refractive index equal to that of the dust. Just as every one has a different automobile license or telephone number so dusts have different refractive indices and thus can be identified. For example, foundry sand

(Continued on the next page)



Quartz particles seen in blood counting chamber with phase microscope.

(quartz) has refractive indices of 1.544 and 1.553. Particles of dust disappearing in liquids of these indices when examined under the bright-field microscope are identified as sand, since only sand has these exact refractive indices. Dust of refractive index values other than 1.544 and 1.553 would be visible under the microscope.

This method of identification requires considerable skill in microscopical technique especially in the case of mixtures of small particle size dusts, all very close or equal in index to the liquid. In such a situation it is very difficult to determine if there is complete disappearance of a particle which would thus identify it as having the index of the liquid. An improved microscopical method termed "dispersion staining" has been suggested for identification of dust particles. This method makes use of a special dark-field microscope. Instead of the sand particles or other dusts disappearing in the refractive index liquid for which they are equal, the particles appear primarily a dark blue color with a trace of red and thus can be readily identified.

Chemical Reactions

Chemical tests conducted under the magnification of the microscope is another procedure for identifying dust particles. These tests are usually done by adding another known chemical to the dust collected and observing the reaction under the microscope. The reaction may be the production of a precipitate, formation of crystals or a color reaction. Knowing what result should follow the addition of the known chemical allows for identification of the unknown dust. These microchemical tests were used by investigators at Stanford Research Institute, Stanford, California in identification of such possible acid irritants as ammonium sulfate and calcium sulfate in the Los Angeles smog. Further work being conducted by these investigators seems to indicate that gasoline fumes may also contain calcium sulfate and impure ammonium sulfate.

Fluorescent chemicals have also been used at Stanford Research Institute for tracing air motion and charting the movement of industrial air pollutants. The fluorescent chemical is dispersed in the waste gas from an industrial plant under investigation. Air samples are collected on filter paper at a distant point which may be as much as a mile or more from the industry suspected of air pollution. The filter paper is examined under an ultraviolet microscope for the presence of fluorescent particles. If found to be present, especially in large numbers as determined by microscopic counts, it proves that the industry in question is polluting the air in the neighborhood where the fluorescent chemical was collected.

From information obtained by use of the microscope concerning the amount of dust at the approximate breathing area of an industrial worker, knowing its particle size and identity, it is possible to evaluate the working environment of the individual and determine the need for exhaust ventilation. Dust analysis with the microscope is also of value for determining if an existing exhaust system is functioning adequately in removing dust from the breathing area.

Based on paper presented at the 1956 Genesee Valley Safety Congress. Pictures by courtesy of Bausch & Lomb Optical Co.

Radiation Units

(from page 39)

Bureau will also supply a standard diaphragm to be used in intercomparing free-air standards in those laboratories having them.

Radiological Protection Commission

Work of the ICRP has been closely paralleled by that of the U. S. National Committee on Radiation Protection (NCRP), which was formed in 1929. The 1934 recommendations on permissible exposures were based mainly on the possible harm to the individual working with X-rays. Virtually no thought was given to possible genetic effects. However, as a result of the intensified study of this question during the Manhattan District days, and new evidence which indicated the possibility of both genetic effects and long-range effects on the individual, a review of these questions was made by both the national and international commissions. In 1948, the NCRP recommended that the permissible levels of radiation exposure be reduced by a factor of about two. Thus the permissible exposure of 0.1 roetgen per day was lowered to 0.3 roetgens per week. The same basic figure was subsequently adopted by the ICRP in 1950.

It is proposed that a lowering be achieved without changing the basic level of 0.3 roetgen per week. If this maximum level were maintained indefinitely, it would mean an exposure of about 15 roetgens a year, or between 400 and 600 roetgens per working lifetime. The Commission has agreed that exposure of a substantial fraction of the population to this much radiation is undesirable. Accordingly, while adhering to the permissible exposure of 0.3 roetgen per week, the latest recommendations of the ICRP state that it is inadvisable for an individual to receive more than 50 roetgens up to his age of 30, 100 roetgens up to age 40, and 200 roetgens up to age 60. This means that individuals who are exposed to radiation at the maximum level will be allowed to work only one-third of the time. In effect, the normal daily working level is reduced by a factor of about 3.

Exposure Limits Generally Low

This will not be as difficult to carry out as might at first appear, since most of the large atomic energy and other radiation establishments in this country are already operating at exposure levels considerably below even the new reduced amount. It is rare for individuals in such operations, even today, to be exposed to more than about one-fifth of the present permissible amount.

The new recommendations will, however, introduce a penalty on those installations that insist upon exposing their workers to the maximum permissible weekly amount. Under the new rules, such workers may be exposed to this level for only one-third of their working time, the penalty thus taking the form of intermittent and hence uneconomic use of personnel. The inducement will therefore be strong for such installations to improve their protection facilities to the point where the maximum radiation exposure will not exceed the newly recommended average levels.

This flue, used for coal heater before gas heater was installed, became stopped up, caused death of elderly pair.

The "Silent" Killer Caught!

by **CHARLES W. GRUBER**
Air Pollution Control and Heating
Engineer, Department of Safety
City of Cincinnati, Ohio

Cincinnati declared war on "The Silent Killer" (carbon monoxide) on January 19, 1955. On that date, City Council adopted an ordinance authorizing city inspectors to seal out-of-service hazardous gas heaters.

History teaches that all wars have both remote and proximate causes. Cincinnati's war on gas fumes follows the classic pattern.

For years, residents there, as in other communities, "put up with" defective gas heaters. Some persons became ill because of carbon monoxide poisoning. Many died. The family of a prominent physician, living in a new apartment building, was hit twice within 14 months.

The first time was on Oct. 18, 1948. The doctor's wife, sister, three sons and an 18-month-old boy from an upstairs apartment were hospitalized. Affected, but not hospitalized, were the physician, his mother, and the upstairs family, including the mother and four-year-old brother of the hospitalized baby. The fumes killed the physician's dog. Authorities said the fumes came from the gas furnace, which was improperly installed and improperly regulated.

On Nov. 28, 1949, the same family was overcome by fumes. This time, the cause of the near-disaster was an improperly adjusted and connected water heater.

As a consequence of the 1948 incident, the city's Air Pollution Control and Heating Inspection Bureau started a program of obtaining facts about all CO accidents. Since the bureau already had responsibility for inspection of all heating equipment, this was a logical step. Since 1948, the records indicate, there have been more than 200 such investigations.

In addition to the program of making detailed investigations of all CO accidents, the bureau began to press for improved legislation in the field. A 1951

In an endeavor to eliminate hazardous room and water-heating equipment, inspectors of four Cincinnati departments launched a united and very vigorous campaign.

Heating Inspector J. E. Garland makes a test of the efficiency of a gas heater chimney.

NEW 99.99% ACTIVE MATERIAL PROVIDES SAFE ICE CONTROL

SPECO, INC. has introduced a new chloride-free ice and snow melting material in prismoid form that is harmless to pavements, metals and vegetation. Known as ICE REM-CF, it is 99.99% chemically active and contains neither calcium nor chlorides.

Unlike ordinary ice and snow melting chemicals, CF does not produce a heat effect as part of its melting process. This feature makes it ideal for application on cement, concrete and asphalt. In addition, it will not corrode aluminum and other metals.

According to the manufacturer, ICE REM-CF thaws ice and snow quickly on steps, walks, loading platforms, streets, airport runways, railway switches, gutters and drains. As it produces a combined melting and abrasive action, it is recommended for use in street car, bus and truck sand boxes and under spinning automobile wheels.

Because its molecular structure has a greater depressing point on ice than salt, ICE REM-CF has substantially more thawing capacity at lower temperatures and in the sub-zero range. It leaves no messy residue and is non-hygroscopic (won't absorb moisture from the air). Consequently, it is cleaner to use and simpler to store than chloride-type products.

CF is a companion product of regular ICE REM, which has been marketed by Speco, Inc. for the past 10 years and is claimed to have been the first ice and snow-melting pellet sold commercially. Available for shipment in hopper cars or dump trucks plus 100, 200, 300 and 500-lb. fiber drums. Ton lots are packaged in 100-lb. I.C.C. approved shipping bags.

SPECO, INC., CLEVELAND 9, OHIO

(For details, use Key # Y-13 on card on page 35)

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(For details, use Key # Y-14 on card on page 35)

ordinance required every new and existing gas-fired room and water heater, regardless of size, to be connected to an approved chimney in an approved manner.

In February, 1954, an ordinance was adopted requiring all heaters sold in the city to be vented, with proper chimney connections. Local merchants were forbidden to sell any gas heaters except brands carrying the blue star seal of approval of the American Gas Association. All heaters sold were required to have approved gas pressure regulators.

All these measures tended to improve the situation, but the bureau warned that they were still not adequate to combat CO. Then, on the day after Christmas, 1954, carbon monoxide claimed two more victims, sisters, ages 10 and 13. This tragic accident now is considered the "CO war proximate cause." It led to swift enactment of the sealing-out ordinance, the "declaration of war," in less than a month.

City's Strongest Weapon

This ordinance is now the city's strongest weapon in the Gas Safety Inspection Program. It permits city heating inspectors to place a mechanical seal on gas heaters found hazardous by test, without prior notice to the owner of the premises or equipment. In addition, they may install a mechanical seal for noncompliance with an order to correct defects in heater installation.

Standard equipment used by Bureau inspectors to determine if carbon monoxide is present in the air is a CO Tester, manufactured by a leading safety appliance company.

The CO Tester is a glass tube containing a granular, yellow chemical which reacts to carbon monoxide. A rubber aspirator bulb similar to that of an atomizer draws air through the tube. If carbon monoxide is present, the yellow chemical turns color ranging from light to dark green depending on how much CO is in the air. A color chart is used for comparison with the color in the tube to show the percentage of CO.

The Bureau's personnel makes all accident investigations, as well as "spot" inspections, in answer to calls from the public. All city inspectors receive technical information from the Bureau. In order to keep the public alerted against "The Silent Killer," the Bureau works closely with press, radio and TV outlets.

Among 1956 Promotions

Promotions this year included an area-wide "Check Your Chimney Week" and a special building-by-building inspection program, authorized by City Manager C. A. Harrell.

The "Check Your Chimney Week," held in January, was cosponsored by the City, the Greater Cincinnati Safety Council, the Cincinnati schools, retail grocers and the Cincinnati Gas and Electric Co.

More than 150,000 information "task sheets" were delivered to area homes, showing proper procedure for checking and cleaning chimneys and gas appliances. The "task sheets" were distributed through school children, and in some districts, more than 60 percent

were returned to schools, indicating that the safety tasks were completed by parents.

The building-by-building inspection program indicates that more than 1,500 defective heaters were corrected of which about 200 have been sealed out of service.

14 Deaths in 1955

Despite the conscientious work of the inspectors, firemen and other city employees, there were 14 deaths reported from CO in Cincinnati last year, with 63 other persons overcome but revived. Since 1951, 64 persons were reported to have lost their lives or were found in critical condition, and 307 persons were overcome.

One of the major jobs in the "war" is the policing of several hundred retail outlets which sell heaters. When the ordinance was adopted making it illegal to sell unvented heaters, spot checks were made and literature distributed by the Bureau. A newspaper reporter, posing as a factory worker, visited store after store trying to buy an illegal, unvented heater. At the end of the day, weary and foot-sore, he was able to report that he found only one.

Bureau inspectors discovered only two illegal sales, both by the same dealer. He was brought before municipal court and fined $50 per heater.

Another dealer said "I got stuck with 30 of them but I wouldn't take the chance of selling one."

In one apartment house, 12 chimneys were ordered rebuilt for safety and five obsolete heaters were condemned. In another apartment, a heating inspector found four children sick and nauseated by carbon monoxide. The heater vent pipe ended in a solid brick wall!

Furnace Incorrectly Constructed

On a routine inspection of a new house, the heating inspector noticed that one wall was blackened with soot. He discovered that the furnace was incorrectly constructed, permitting gas fumes to leak into the living area. Immediate orders for correction were sent to the contractor, who cooperated. In addition, he reported that eight additional furnaces in his shop would be corrected before installation in homes.

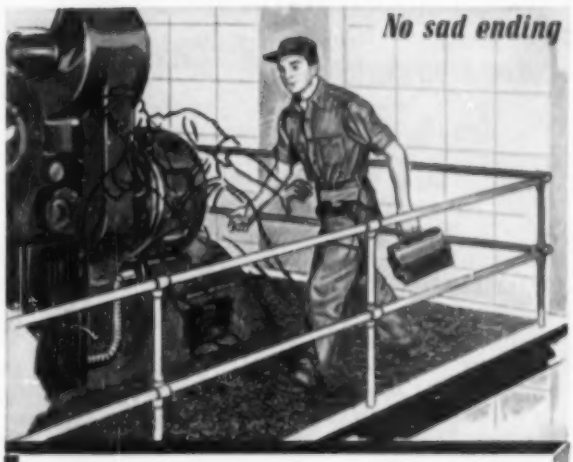
Use of the carbon monoxide tester indicated fumes spilling into the basement of another home where everything seemed to be in order. Careful investigation revealed that what appeared to be a chimney was really only an ornamental edifice.

Cincinnati seems to be winning its "war." A graphic portrayal of CO accidents shows a decided downward tendency.

From our experience with the problems of carbon monoxide hazards, we know that there is no such thing as a permanent correction. Accidents will happen in the future.

But if officials and citizens will cooperate, continue to be vigilant, and observe safety precautions, the enemy, carbon monoxide, can be kept in retreat—permanently!

Pictures by courtesy of Mine Safety Appliances Co.



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(For details, use Key # Y-15 on card on page 35)

Courtesy & Incentives Lead to Safety

You can't run a big-city transportation service without a solid safety program. That's the opinion of Joe Vidas, safety director for Railroad Transfer Service. "If we had turned our more than 100 limousines, buses and trucks loose in Chicago traffic without a safety program the conglomerate crash would have been deafening," says Vidas.

Railroad Transfer Service carries more than 4,000 passengers a day between Chicago railroad stations —through Chicago's traffic-heavy Loop—and in its six months of operation it has had only four minor accidents. "And those were merely fender kisses," Vidas reports.

"The safety program," Vidas says, "is based on two points. We stress courtesy to our drivers—and that's what safety is to a degree—and we have established an incentive system which rewards them for safe operations."

Courtesy is really the heart of the program, Vidas insists. In order to encourage courtesy, the company has provided its motive equipment with power steering, automatic transmission and power brakes—features which take some of the physical work out of big city driving.

By reducing fatigue, the drivers' reactions to accident conditions are quick, enabling them to avoid a mishap which a weary driver would perhaps not be able to miss.

The incentive or reward system for drivers works simply. A driver is given so many points for not having an accident in a given period.

These points, as they accumulate, entitle the driver to prizes—ranging all the way from a ruler to a refrigerator or grand piano.

"Naturally, it takes a driver some time to accumulate points enough for a grand piano," Vidas says. "But some of the fellows have it on their minds. They have kids growing up who will be able to put a grand piano to good use."

Development of the safety program is mostly the work of the general manager, Alexander Baxter, whose career has been devoted to transportation.

Radiological Safety Course

The Institute of Industrial Medicine of the N. Y. U. Post-Graduate Medical School and College of Engineering, in cooperation with the Atomic Energy Commission, is offering an introduction to radiological safety in a two-week, full-time course from January 7–18, with an optional laboratory session from January 21 to February 1. The course will be repeated from January 30 to May 22 with meetings on Wednesdays 4–6 P.M. and the laboratory course 7–10 P.M.

Tuition for the lecture course and laboratory course is $75 each. Registration will be handled by mail. For further information and application forms, address: Office of the Dean, Post-Graduate Medical School, 550 First Ave., New York 16, N. Y.

the SAFE INVESTMENT

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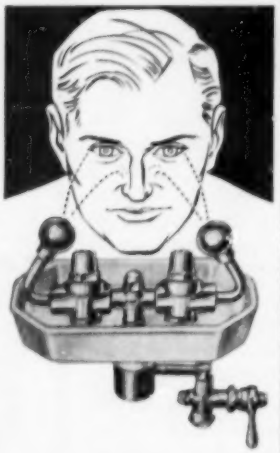

FIRST AID equipment for eyes is one of the best investments you can make! It minimizes costly insurance claims and thereby lowers your workman's compensation insurance rates—by reducing lost-time eye injuries.

Employees can cleanse injurious chemicals and particles from their eyes *instantaneously*—before the necessary medical aid can be reached. *HAWS Eye-Wash Fountains* and emergency drench showers are designed and manufactured in cooperation with leading Safety Engineers—they provide clear water at controlled pressure.

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(For details, use Key # Y-16 on cards on page 35)

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Prevents death and injuries from falling.

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(Use Key # Y-17 on Inquiry Card on page 35)

THE FIRE FRONT

What is "Noncombustible" Building Material?

In recent years there has been considerable confusion among building code authorities and others on the definition of a noncombustible building construction material, warns a recent bulletin of the National Board of Fire Underwriters. The matter is important because many recently developed building products employ a combination of combustible materials with materials which will not ignite and burn when subjected to fire.

The general approach to defining the term that has been used by many groups interested in the problem is that of setting up a test procedure and saying that those materials which pass the test are noncombustible and those which fail are combustible. These test procedures are for the most part small scale tests and therefore do not give a good indication of the burning characteristics of materials under actual fire conditions. Nor do any of the proposed test procedures give results which reflect data obtained from actual fire experience records with respect to the materials which may properly be considered as noncombustible building construction material.

The National Board of Fire Underwriters here presents a definition of noncombustible building construction material which has been in use for a number of years and has been shown by fire experience to produce satisfactory results. A practical and not theoretical approach was used in developing this definition. It was first determined which materials, on the basis of fire experience, could be properly classed as noncombustible and then fixing the qualifying conditions in the definition to include these materials. With the large variety of building materials in use today and with the new ones being introduced almost daily, it appears that this is the only feasible approach to the problem of defining a noncombustible building construction material.

The definition has gained such widespread acceptance in the last few years and has proven to be of such value that it now appears as the definition of **noncombustible,** as applied to a building construction material, in the National Building Code.

That this definition produces the proper results and is gaining wide acceptance is further evidenced by the fact that the National Fire Protection Association has incorporated in its "Standard Types of Building Construction," NFPA No. 220, a definition of noncombustibility which is essentially identical to the definition here presented.

The definition applies to material used for the walls, roofs, or other structural parts of buildings, but it does not apply to surface finish materials, and is not applicable to the determination of whether a material is noncombustible from the standpoint of clearances to heating appliances, flues or other sources of high temperature. Some materials defined as noncombustible by this definition may not be suitable to be placed close to heat producing appliances because of charring, discoloration, cracking, or disintegration resulting from exposure to such appliances. It has been drafted for use in connection with codes and standards which make reference to noncombustible (or incombustible) materials in the construction of buildings or other structures.

Nine Month Loss Up

Estimated fire losses in the United States during September amounted to $70,118,000, the National Board of Fire Underwriters has reported. This loss represents a decrease of 6.4 percent from losses of $74,930,000 reported for August (1956) and an increase of 6.3 percent over losses of $65,970,000 reported for September, 1955.

Losses for the first nine months of 1956 now total $731,203,000 an increase of 9.4 percent over the first nine months of 1955, when they amounted to $668,444,000. These estimated losses include an allowance for uninsured and unreported losses.

Definition

"Noncombustible" as applied to a building construction material means a material which, in the form in which it is used, falls in one of the following groups (a) through (c). No material shall be classed as noncombustible which is subject to increase in combustibility or flame spread rating beyond the limits herein established, through the effects of age, moisture or other atmospheric condition as, for example, various types of treated wood. Flame spread rating as used herein refers to ratings obtained according to the Standard Test Method for Fire Hazard Classification of Buildings Materials of Underwriters' Laboratories, Inc., ASTM E84. The rating is an indication of the burning characteristics of a material and is derived in comparison with untreated red oak boards as 100. For data on such ratings see Underwriters' Laboratories Fire Protection Equipment List under the heading Building Materials—Hazard Classification (Fire) (40 U8).

(a) Materials no part of which will ignite and burn when subjected to fire. Examples: asbestos fiber, brick, clay tile, concrete, glass, gypsum, iron, portland cement, slate, steel, stone. Any material

which liberates flammable gas when heated to any temperature up to 1,380 F., for five minutes under any test conditions shall not be considered noncombustible within the meaning of this paragraph.

(b) Materials having a structural base of noncombustible material, as defined in (a), with a surfacing not over ⅛-inch thick which has a flame spread rating not higher than 50. Examples: certain types of protected steel sheets, gypsum wallboard.

(c) Materials, other than as described in (a) or (b), having a surface flame spread rating not higher than 25 without evidence of continued progressive combustion and of such composition that surfaces that would be exposed by cutting through the material in any way would not have a flame spread rating higher than 25 without evidence of continued progressive combusion.

Fire Protection for Chemicals

The hazards of various classes of chemicals are analyzed with discussions of fire prevention measures and fire fighting tactics in a book by Charles W. Bahme, "Fire Protection for Chemicals," which has just been published by the National Fire Protection Association.

Mr. Bahme, a Battalion Chief of the Los Angeles Fire Department, has written this book for use in fire protection engineering classes and for training members of the fire service concerned with chemical fire hazards.

His text outlines briefly methods for control of hazards involved in dealing with chemicals. It contains answers to a few of the many problems associated with the safe handling and storage of chemicals and will be followed by more extensive consideration of fire safety standards in this field by the newly reorganized NFPA Committee on Chemicals and Explosives. The book is 152 pages, cloth bound, and may be obtained from the Publications Department of the NFPA, 60 Batterymarch Street, Boston, at $3.00 per copy.

Imbedded Sprinkler Pipes

A unique installation of a sprinkler system was made recently, utilizing a minimum of space and a corrosion-resistant wrought iron piping, at the Stimson Building Garage in Seattle, Washington. The sprinkler system required all available head room because of the construction of an additional level for parking space which allowed little excavation.

A workman is shown welding fittings to a section of the piping which totalled 2,540 feet and varied in diameter from 1 to 2 inches. The wrought iron piping was later covered with concrete and only the sprinklers extended through the ceiling below. This sprinkler project is similar to a radiant heating system in which piping is permanently encased in concrete. The Seattle fire department and fire underwriters approved the renovation in the building garage.

Picture by courtesy of A. M. Byers Co.

New Fire Codes

The National Fire Codes, a compilation of 174 fire safety standards as developed by the National Fire Protection Association, have been published by the NFPA in a revised six-volume 1956 edition, it was announced by Robert S. Moulton, technical secretary of the Association.

The six new volumes by title and content are:

Volume I—Flammable Liquids and Gases (35 standards, 860 pages)
Volume II—Combustible Solids, Dusts, Chemicals and Explosives (35 standards, 616 pages)
Volume III—Building Construction and Equipment (33 standards, plus an informative discussion of building codes and references to model codes, 704 pages)
Volume IV—Extinguishing Equipment (31 standards, 1024 pages)
Volume V—Electrical (The National Electrical Code, new 1956 edition plus six other NFPA electrical standards and a digest of the electrical provisions of 69 other NFPA standards, 704 pages)
Volume VI—Transportation and Misc. (23 standards on air, marine, bus and truck transportation and salvage, plus a comprehensive review of applicable government regulations, 528 pages)

Incorporated in the 1956 Volumes are 32 new or revised fire safety standards which were adopted at the 1956 NFPA Annual Meeting in June. These standards also include all amendments approved by the NFPA Board of Directors up to and including July 30, 1956.

The Codes, in keeping with the traditional objectives of the NFPA, are offered as a suggested basis for safety to life and property from fire without causing undue inconvenience and expense. The Codes are purely advisory as far as the National Fire Protection Association is concerned. They are used widely in the United States, Canada and abroad by property owners, legal and insurance interests, and others responsible in the field of fire safety.

More than 100 technical committees composed of experts representing the general public, government, industry, and insurance prepare and regularly review and revise all NFPA fire safety standards.

Many of these standards have subsequently been adopted and published as the official standards of the National Board of Fire Underwriters, the Dominion Board of Insurance Underwriters (Canada), and other organizations.

The National Fire Codes, $6 per volume, may be obtained from the Publications Department, National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.

plastic panel snuffs out fire

Dramatic, full scale fire tests have brought approval of a plastic panel for use in industrial construction. The tests proved that these panels would in no way contribute to flame spread throughout an industrial plant in the event of fire.

The large-scale, roof deck tests were performed on fiberglass-reinforced plastic panels by Factory Mutual Laboratories, who approved the panels as "Fire Retardent."

This structural plastic panel, chiefly used in wall daylighting and skylighting of buildings, thus carries both the Factory Mutual seal and the label of Underwriters' Laboratories.

The two seals have varying connotations. U. L. tests for fire hazard to occupants, when the material under test is used in building construction. Factory Mutual tests for physical damage to the building.

According to the manufacturer, the panel owes its fire-retardant qualities to the carefully-controlled processing of Hetron, a special type of fire-resistant polyester resin developed by the Hooker Electrochemical Company, Niagara Falls, after years of research. Development of fire retardant panel began in 1954. In 1955, it became the first translucent structural plastic panel to be listed and labeled by Underwriters' Laboratories.

The favorable Factory Mutual report on this material's fire-retardant qualities comes at a time when industrial use of fiberglass-plastic corrugated panels and flat panes is increasing. This is due to the material's shatter-proof and light-diffusing properties, its ease of integration with other structural materials, and its negligible maintenance cost.

The test furnace was constructed of mineral tile, 100 ft. long x 20 ft. wide x 10 ft. high, with one end open. The entire roof of the structure was made of the fire retardant plastic panels. The firing apparatus was set into the closed end of the building. Flaming vaporized gasoline produced controlled heat.

In operation, the test structure acted like a horizontal chimney, with the top side formed by the plastic panels.

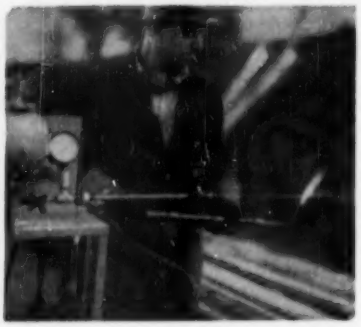
Ignition Time

With observers in place along the roof, firing began. After about 1½ minutes, the first vapors began to curl up from the hot panels. Ignition took place after 2½ minutes in the roof area directly over the firing apparatus. By this time, temperatures within the building were above 800°F. In slightly over four minutes, the maximum temperature of around 1200°F. was attained. Two panels burned through in the bay directly over the flames. This served as a heat

(Continued on page 55)

Fire-Retardant Panels Go to Work

KEEPING UP WITH



FIRE RESISTANT HYDRAULIC FLUID

An hydraulic fluid whose fire-resistant properties prevent it from burning on contact with flames, heated metal surfaces, or molten metal, has been introduced by the Shell Oil Company, under the trade name Irus Fluid 902. A special formulation of water, petroleum hydraulic oil and emulsifying agents, the fluid is particularly suitable for use in industries where hydraulic leaks or line ruptures would be immediate fire or explosion hazards.

The new fluid is said to eliminate the possibility of combustion by releasing its water content as a protective steam blanket to quench fire. This "snuffer" action reduces local temperatures and displaces oxygen from the immediate area. In most cases, the remainder of the hydraulic fluid will not support its own combustion. Further, the oil is said to continue hydraulic action should the water be dissipated for any reason.

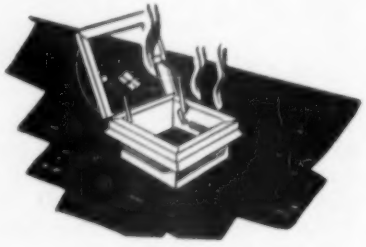
Preparation of existing systems prior to installation of the fluid requires only a thorough cleaning to remove previous materials. It is non-corrosive on ferrous and most non-ferrous metals. The fluid is colored a bright yellow to permit instant recognition and location of possible leaks.

For details, use **Key # FP-1** on Inquiry Card on page 35.

AUTOMATIC FIRE VENT

A fire-control device for automatically venting fires through the roof of a building has been developed by Wasco Products, Inc. Available in two models, the Pyrodome, equipped with a clear plastic cover, and the Pyrovent, equipped with an aluminum cover, the device is being marketed completely prefabricated.

The unit is designed to function when an excessive amount of heat



is built up. Such heat causes the vent's fusible link to snap, activating a lifting mechanism which automatically raises the dome. Heat, smoke and gases escape through the roof almost immediately after the fire has started, and the fire is localized in the same manner as a fireplace. Also, when roof venting occurs, areas adjacent to the fire are said to be kept below the combustion point, minimizing the spread.

The manufacturer states that the venting device achieves three major objectives: it checks the spread of the fire; allows fire-fighters to see and locate the heart of

FIRE PROTECTION DEVELOPMENTS

the fire; and greatly reduces the possibilities of asphyxiation and goods contamination. All moving parts are mechanical, and inspection can be made from below as all linkage is exposed on the inside of the well.

For details, use **Key # FP-2** on Inquiry Card on page 35.

JEEP-MOUNTED FIRE TRUCK

A concept of fast defense against industrial fires is this jeep-mounted fire truck. The compact unit measures 60 inches wide by 132 inches long, allowing travel through narrow plant aisles while carrying a variety of equipment to the scene of a fire. Available from Sentry Safety Service, the unit is custom-built to suit individual plant requirements. The truck pictured is equipped with a 400 gpm pump, booster tank containing 100 gals. of water that will supply six minutes of fog spray, 100 lbs. of CO_2 with 50 ft. of hose, 100 lbs. of dry chemical in portable extinguishers, 150 ft. of 1½-inch hose, two 10 ft. lengths of hard-suction hose, an 18 ft. extension ladder and assorted rescue tools.

Known as the Minitruc, the unit is equipped with four-wheel drive. Standard size wheels permit crossing hose lines, assembly line tracks, etc. The water pump can supply 300 psi for straight stream or high pressure fog. Its booster tank provides an instantaneous water supply for initial knockdown or cover while hose and suction lines are being connected.

For details, use **Key # FP-3** on Inquiry Card on page 35.

STAINLESS STEEL EXTINGUISHER

A 2½-gallon stainless steel pressurized water extinguisher introduced by Buffalo Fire Appliance Corp. is said to be four pounds lighter than any equivalent brass model. The extinguisher, used to combat Class A Fires, shoots a 45-foot stream of water in response to slight pressure on the release lever. The stream shuts off when pressure is released. Air at any filling station can be used to re-pressurize the extinguishers. Nitrogen, an inert gas, is also available for the same purpose from Buffalo dry nitrogen recharge units.

Re-pressurizing is simplified by means of an air-inlet valve similar in construction to the valve on an automobile tube. No special tools are required since the brass shut-off valve unscrews easily from the dome. The extinguisher is recommended by the Underwriters' Laboratories for use against wood, paper, trash, rubbish or other ordinary-combustion fires.

For details, use **Key # FP-4** on Inquiry Card on page 35.

NEW FOG NOZZLES

Two nozzles that make an expert out of any novice fireman have been introduced by the Akron Brass Mfg. Company, Inc. All degrees of fog, plus straight stream, are easily available in these sturdy brass fog nozzles. Both nozzles can be shut off by turning in either direction, thus reducing water damage and conserving water.

The #711 is especially designed for use on hose rack and cabinet units. UL approved, it functions particularly well at low pressures.

The #1300 is for use in industrial plants. Featuring heavy-duty construction plus high gallonage, it too provides all degrees of fog plus non-feathering straight stream.

For details, use **Key # FP-5** on Inquiry Card on page 35.

AUTOMATIC FIRE ALARM SYSTEM

A fully automatic fire detection and sprinkler supervisory system without mechanical code transmission has been developed by the Notifier Mfg. Co. and granted a Class A rating. It can be designed for industrial, commercial and institutional use and is said to exceed the

requirements of the NBFU. All the elements of the system are listed by Underwriters' Laboratories and most of them by Factory Mutual.

The primary parts of the system include: the power supply unit; control panel and annunciator, available in up to 80 circuits and locations for each power unit; emergency signaling actuator; emergency signaling receiver and a remote station receiving panel; automatic code translator with memory retention; punch register and time stamp. The system can be used with thermostats to form an automatic fire detection and alarm system; or it can be connected to sprinkler controls for a sprinkler supervisory system; or a combination of the two. Audible signals are used on the immediate premises while notifications of fire, water flow, or trouble signals are transmitted instantly to the receiving center or fire station.

For details, use **Key # FP-6** on Inquiry Card on page 35.

LIGHTWEIGHT FIRE HOSE

A new 1½ inch fire hose weighing 34½ pounds in a coupled 100-foot length has been developed by Fyr-Fyter Company. Called Super Fyr-Flex XL, the double jacket dacron hose is quicker drying because it absorbs 25 percent less water. In addition to the conventional 50-foot lengths, the hose is available to municipal and industrial fire departments in 100-foot sizes.

The hose has a much smoother waterway and the weave's close picks per inch reduce friction loss to a minimum. The hose also requires less time and space to pack and fold. Its light weight is due to the use of extra-long staple cotton chemically treated to retain flexibility and provide added strength.

For details, use **Key # FP-7** on Inquiry Card on page 35.

DISPOSABLE CARTRIDGE EXTINGUISHER

The Badger Fire Extinguisher Co. has introduced two models of a water filled extinguisher featuring a corrosion-proof, disposable activating cartridge. The extinguisher, known as the Nautilus or the Penguin (the anti-freeze model for temperatures to –40 degrees F.), is available in 1¼- and 2½-gallon capacities. They are intended for use against Class A fires only.

Designated the Throw-Away, the CO_2 cartridge is easy to insert in its position at the neck of the extinguisher, the cartridge and holder being of one unit. When the extinguisher is activated, the cartridge accurately meters gas pressure to provide a steady, 45-foot stream. For periodic inspections, all that is required is to check the water level of the extinguisher and weigh the cartridge in accordance with instructions on the extinguisher label.

For details, use **Key # FP-8** on Inquiry Card on page 35.

GUARD ALARM

A new type of hand-held emergency "Guard Horn" which can be heard more than 1,000 feet has been announced by the Falcon Alarm Co., Inc.

The new self-powered units are designed for added protection of policemen, guards, firemen, watchmen, miners, payroll messengers and persons in other hazardous jobs who require self-contained signaling devices. The pound-and-a-half units are powered by Du Pont's harmless "Freon" and will deliver about 180 seconds of intermittent warning blasts before requiring refilling. Field tests show that the Guard Horn's sound reaches a volume of 110 decibels, 25 louder than required in approved fire alarm systems.

The units consist of four-inch-long steel cylinders topped by specially-engineered horn assemblies. Finger-operated toggle switches control the flow of Freon through diaphragm-type horns and may be locked into full open position for sustained operation. The units are equipped with special clips so they may be worn on workers' belts.

For details, use **Key # FP-9** on Inquiry Card on page 35.

AUTOMATIC FIRE ALARM SYSTEM

A low voltage, automatic fire alarm system intended for factories, warehouses, nursing homes, etc., located in small buildings has been introduced by the Edwards Co., Inc. Known as Type AMVAD, the system is designed to detect a fire, indicate the location of the fire at a central point and sound a signal for the evacuation of the premises. If desired, the system can be connected directly to a municipal fire alarm system or a fire headquarters. Provision is made for an auxiliary power supply in the event of main power supply failure. This secondary power source is battery-op-

erated and is said to allow the system to function, under supervisory conditions, for up to 24 hours after a power failure, operating the alarm bells for 15 minutes any time during the 24-hour period. The manufacturer especially recommends the system for locations without reliable electric light or power.

Under normal supervisory conditions, the zone indicating lamps on the door of the alarm control cabinet are lit, and the trouble and alarm lamps extinguished. When a fire is detected, its associated zone indicating lamp is extinguished and the common alarm lamp is lit. All alarm bells sound continuously until the operation station is restored to normal. The alarm system is listed by Underwriters' Laboratories.

For details, use **Key # FP-10** on Inquiry Card on page 35.

FLAMMABLE LIQUIDS HANDLING GUIDE

A non-technical, illustrated explanation of the nature and safe plant use of flammable liquids has been made available by the Protectoseal Co. Three sections of a continuing series have now been published under the general title, "Flammable Liquids,—their characteristics, hazards and safe handling," and are available in a loose leaf cover binder with ample space for the remaining sections. When completed, the series will cover the safe practices in the current use of flammables in every division or department of a typical plant, beginning with the receiving and storing of flammables and following through all the various uses to final disposal.

The first section is devoted to the characteristics of flammable liquids. It is their invisible vapors that are so readily ignited by a chance spark, rather than the liquid itself, and a brief explanation follows calling attention to the common sources of ignition which occur in production processes and the fire preventive measures to be taken.

The second section is devoted to the control of flammable liquids and their vapors. Briefly described are the various devices incorporated into flammable liquid containers which eliminate combustion, permitting flammables to be used with complete safety to plant and workers. The series then moves into a consideration of actual plant procedure and discusses first drum storage and dispensing, and large volume tank storage. Subsequent issues discuss various plant applications and uses of flammable liquids and describe the fire preventive devices which must be employed for complete safety, pointing out that special containers incorporating these devices have been found to lessen fatigue and actually increase production in many processes. The highly informative series is available without charge.

For details, use **Key # FP-11** on Inquiry Card on page 35.

OBEDIENCE

A siren, horn or bell commands instant obedience! The reaction to an audible signal is almost automatic!

Whether used for warning, start and dismissal, or paging, the sound of these signals contrasts with, or cuts through high noise levels. Work processes start and stop on *time!* Personnel get away or stay away from danger spots, key people respond to special codes for phone calls.

Horns, Bell, Sirens and Beacon Ray lights can save you time and money or help avoid death and disaster. *INVESTIGATE!*

WRITE FOR CATALOG 100 *TODAY!*

FEDERAL SIGN and SIGNAL Corporation

8731 S. State St., Chicago 19, Ill.

(For details, use Key # Y-18 on card on page 35)

1,000 GPM PUMP

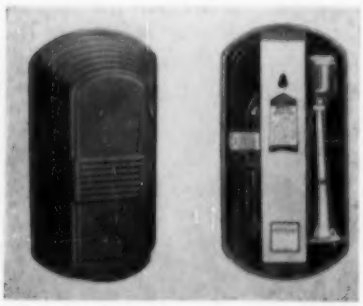
Addition of a new Class A, electric or manual control 1,000 gallons per minute pumper to its Special Series of four-wheel drive fire engines has been announced by the Four Wheel Drive Auto Company. The company has also announced that electric and manual pump controls are available on all of its Special and Deluxe Series pumping engines. Known as the CMA Electro-Matic pump, it is equipped with an electric priming pump and can be furnished with electric controls for shifting and operation. Its 212 hp engine is said to offer considerably high torque and low speed performance characteristics with peak torque at 1,600 rpm, thus providing the necessary reserve power needed for high-pressure pumping.

Body style of the Special 1000 is engineered for built-in compartments, if desired. The pumping engine has a heavy gauge steel, 500-gallon booster tank and 6-inch hard suction hose. Booster hose reel for 200 feet of ¾-inch hose is also provided. Hose body space of the tank allows for 1,500 feet of 2½-inch hose. Laddering includes a 24-foot, two-section wall and 14-foot roof ladder with other combinations optional.

For details, use **Key # FP-12** on Inquiry Card on page 35.

STORED PRESSURE FIRE ALARM

No installation problems and no maintenance are features of a new unit-type fire alarm made by the Evergard Fire Alarm Co. Carrying the approval label of Underwriters' Laboratories and with a 20-year guarantee, the alarm utilizes a heat-sensitive fuse that melts at 136 degrees F. and a small tank storing DuPont Freon under pressure to operate the warning air horn for 15 minutes.



The warning sound is said to be very penetrating and can be heard outside of protected buildings. The small unit, measuring about eight inches in length, has no moving parts, requires no wires nor batteries, and has no springs to be wound. It is simply hung in the area to be protected. Heat from a fire melts the fusible link in the tubing that connects the pressurized tank with the air horn. The action is entirely automatic and after the alarm has been set off, the tank can be recharged and a new fuse inserted.

For details, use **Key # FP-13** on Inquiry Card on page 35.

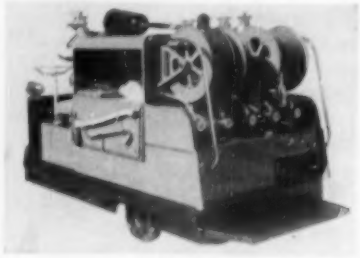
WATER FIRE EXTINGUISHER

A new stored-pressure water fire extinguisher has been introduced by Ansul Chemical Company. The extinguisher has a 2½-gallon capacity. Underwriters' Laboratories has classified the unit 2-A, for use on Class A (wood, paper, rags, etc.) fires.

An important feature of the new unit is its shut-off control. The operator is able to turn off the water at will, thereby reducing water damage to a minimum and allowing most efficient use of the water contained in the unit. The stream of water is released by merely operating the squeeze grip carrying handle. The water stream, supplied by full capacity air pressure from start to finish, has a range of 35 to 40 feet.

After use, the extinguisher can be quickly recharged by replacing the water and pressurizing the unit to 100 pounds per square inch at any source of compressed air. A tri-color pressure gauge tells at a glance whether the air pressure is adequate to discharge the unit effectively. When anti-freeze chemical is added, the extinguisher will operate properly in temperatures down to –40 degrees F. It is available in three different shells, stainless steel, brass and chromium plated brass.

For details, use **Key # FP-14** on Inquiry Card on page 35.



IN-PLANT TRUCK FEATURES FOUR-FOLD FIRE FIGHTING

A new model "In-Plant" fire truck that features four major fire fighting guns was announced by Seco Engineering and Manufacturing. Designated as the S-556 Model, the new truck carries Carbon Dioxide, Dry Chemical, Water and Foam.

This functionally designed and advanced styled model makes available large volumes of extinguishing agents at any part of an industrial plant in seconds as the truck has a speed of 15 miles per hour. It has a turning radius of 96″, is 50″ wide and 68″ high. A 15 cubic-foot accessory cabinet is included as well as a ladder cabinet for an extension ladder. 100-foot hoses for Water Fog and Carbon Dioxide are standard equipment.

An effective in-plant fire department, the Seco mobile fire fighter will smother dangerous blazes in a matter of seconds, thus reducing the chances of a small fire reaching uncontrollable stages. Furthermore, the trucks can be equipped to protect any type of plant, including chemical, metal working, textile, plastic, woodworking, and many others.

For details, use **Key # FP-15** on Inquiry Card on page 35.

Plastic Panel

(from page 49)

vent, and temperatures began to drop throughout the structure.

During the heat build-up period, smoke was emitted from the burning area and the open end of the building. After venting, smoke diminished to almost nothing for the remainder of the half-hour test.

An inspection of the roof deck, after the test was over, showed that the first 40 feet of plastic panels were damaged beyond reclaim. Some delamination and fractures occurred in the first 60 feet from the source of heat. The last 40 feet were excellent.

The testing organization in its report warned that vapors distilling from the panels form hydrochloric acid when in contact with water and therefore it was recommended that caution be exercised in occupancies susceptible to corrosion.

Called "very successful" by the Factory Mutual testing engineers, the large-scale fire test showed the Hetron-based fiberglass-plastic material to be highly fire-retardant, combustible under direct flame, but not flame transmitting.

This means it could not contribute to property loss in case of fire. Underlining its confidence in the product's fire-retardant qualities, the Factory Mutual concluded its report with the statement that when these "panels are used in conjunction with a noncombustible supporting structure, automatic sprinklers may be omitted where permissible under the standards of the Factory Mutual Engineering Division."

Pictures by courtesy of Resolite Corp.

Correction

A correction should be made in the chart "How to Select a Fire Extinguisher" on page 73 of the October issue. Both the foam and the soda-acid types of extinguishers ARE subject to freezing.

Got
DUST STORM THROAT?

YOU NEED A . . .
DUPOR No. 4

The respirator that's made to order for protection against dust, fumes and paint spray! Has everything, and more than you will find in units costing twice the price! Double filters; soft rubber face mask; sanitary face cloth; exclusive Dupor valves for controlled breathing; panorama vision! Economical protection that you cannot afford to be without! Write for sample, $2.00 postpaid!

H. S. COVER
P. O. Box 2508, South Bend 14, Ind.

"Respirators for Industry since 1894"

(For details, use Key # Y-19 on card on page 35)

Back the Attack

A roadblock to halt the headlong increase in traffic deaths will be set in motion with the start of the month-long nation-wide BACK THE ATTACK campaign scheduled for December. The month-long emphasis on stepped-up traffic enforcement and heightened public support will supplant S-D Day as the nation's all-out effort to cut the holiday traffic accident toll. It will continue through 1957 with a long-range plan to reverse the trend in traffic deaths which has climbed steadily upward for the past 18 months.

Campaign objectives are First, to encourage officials to step up the attack against the main factors in last year's holiday traffic accident record: excessive speed, drinking, darkness, and pedestrian errors. Second, to stimulate citizens to back the attack.

President Eisenhower has pointed out that each of us must assume personal responsibility, not only for driving and walking safely, but for supporting our state and local public officials as they seek to enforce and strengthen our safety programs.

Safety Congress

(from page 12)

the traffic death toll this year will reach an all-time high in the history of our nation—a dreadful figure of more than 41,000 deaths, and possibly even 42,000!"

Calling for greater cooperation and increased activity by all individuals and organizations, Mr. Dearborn stated, "I believe the day is nearer than we think when the very size of the traffic toll will be a powerful influence in shocking the American people into drastic action. In fact, I am sure the public is more safety-conscious today than at any time in safety's history—and becoming more and more aroused as the toll increases."

"What we need now is war-time fervor to fight the war on accidents —the same fervor and united effort America has put into every other war.

"America has always been able to get what it has wanted if what it wanted was right and proper.

"Safety is right and proper. Freedom from accidents is a worthy aim. America can have it if it really wants it."

The establishment of college courses leading to professional degrees in safety engineering was urged by the chairman of the Uniform Boiler and Pressure Vessel Laws Society, Inc. H. W. Heinrich said accident prevention would be more successful if it were recognized and practiced as a profession.

He pointed out that the study of safety requires knowledge of human engineering, supervision, psychology and philosophy. He said an overall knowledge of such fields as business administration, training methods, publicity and public speaking is also necessary.

There is no course designed specifically for this field today, Heinrich said. He called for educators and practicing "accident preventionists" to get together and develop the necessary courses and subjects.

What About Seat Belts?

Eggs took the place of people in a series of auto crashes, and the eggs that wore seat belts escaped being scrambled. H. P. Bradley, safety supervisor of Service Pipe Line Co., Tulsa, was responsible for the series of egg "accidents" that took place at a session of the 44th National Safety Congress. Bradley used eggs instead of people in miniature automobiles. When the autos met in head-on collisions the eggs were broken, indicating death or serious injury to human occupants.

In a second series of smash-ups, Bradley strapped the eggs securely in the cars. Most of the eggs remained intact, indicating that a large percentage of persons killed in auto accidents could have been saved by using seat belts. Bradley said that the egg demonstration was used successfully by his company to convince employees of the advantages of seat belts.

On the other hand, "Are auto seat belts a blessing or a danger in disguise?" Several aspects of that question were examined with test data by Edward R. Dye, head of the safety design research department, Cornell Aeronautical Laboratory, Buffalo, N. Y. Dye said studies of mechanical forces with and without seat belts were made with dummies weighted and constructed to simulate human passengers under crash conditions recreated in the laboratory.

Dye said the first question studied was this: Does the seat belt cause the head to whip forward with a higher velocity and hit harder against the instrument panel? According to test results, the energy of the blows was reduced from three-eights to one-fourth of that of the no-belt condition. Behind the steering wheel, he said the energy of the head impact blow is down to less than one-sixth of the no-belt condition.

"From this, we concluded that the seat belt, by restraining a large proportion of the mass of the human body, would appreciably reduce head injuries," Dye said.

The next question: Does the seat belt prevent any injury potential? Both the attitude of the body at the instant of head contact and the angle the contact surface makes with the flight path play an important part in determining the injury potential of the blow.

Therefore, a high-speed motion picture camera was used to study the flight paths, body attitudes, hit locations and timing of dummy bodies. Results showed that the "swan-dive" attitude against a sur-

(For details, use Key # Y-20 on card on page 35)

face 90-degrees to the flight of the head produces the most energy of blow, he said. Two other curves similar to this were next in line of severity.

"Again, the seat belt can completely eliminate the effects shown by the top three curves," Dye told the delegates to the National Safety Congress.

Another question was: Does the seat belt itself inflict any injury during a crash?

Much Data Available

Since seat belts have been used in aircraft for some time, he said, a lot of actual data was available on this question. In addition, the work done by Col. Stapp of the Air Force with the rocket-powered deceleration sled contributed to the answer.

"During the long study made by Dr. E. F. DuBois of the Cornell Medical College on the probability of injury caused by aircraft seat belts, he came to the conclusion that no serious injury ever resulted from forces of the seat belt on the body," Dye said.

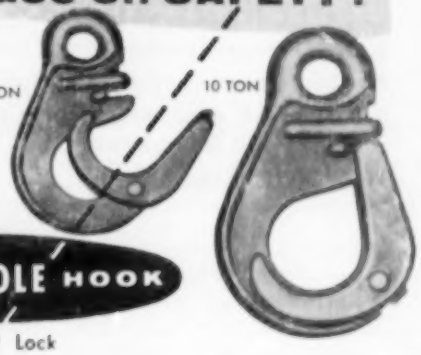
Therefore, he pointed out, this represents good actual information for the answer that the human body can take the forces exerted by the seat belt in the use today without injury.

However, the safety congress was warned by H. E. Trimble that safety-minded motorists should be especially careful when buying seat belts. Some safety belts being marketed use metal that has about as much strength as pot metal. "In fact, you can put it in a vise, then hit it with the heel of your hand and it snaps," he said. "There are many good belts on the market and there are many belts that are junk. The appearance of the firms' letterheads and their fantastic claims mean nothing."

Trimble mentioned some of the points that should be checked when purchasing belts. Buyers should check the stitching, the anchorage, the tolerance in the buckle tongue, ease of releasing after load has been applied, installation costs, ease with which passengers can fasten and unfasten belts, possibility of damage to belt at car door, appearance and cost.

What Value
do you place on SAFETY?

How safe is it?
Check these Safety Features on the Walpole Positive-Lock Safety Hook against any other hook.



THE WALPOLE HOOK
Positive Lock

1. Automatically closes and locks when load is applied.
2. Completely encloses the sling and will not open under load.
3. Drop-forged of chrome nickel steel and finished in bright cadmium.
4. Available in 3-ton and 10-ton ratings and designed with a safety factor of Four.

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Don't buy a broken leg when you buy materials for industry. G. H. Reinier, director of purchases, Abbott Laboratories, North Chicago, Ill., said all buyers in industry have an obligation to cooperate in their plants' safety programs.

One way to help is by buying machinery that have as many accidents as possible designed out of them. Another way, he said, is to subordinate price consideration of an item to desirable safety features.

"With the help of the purchasing agent, the safety engineer can go a long way in avoiding the purchase of injuries as part of the purchase of materials," Reinier said.

On the question of purchasing safety equipment, everybody gains when a plant operates with a standard program of buying safety equipment, according to Rex C. Beckstead, director of the safety and technical employment dept., American Smelting and Refining Co., Salt Lake City, Utah.

Picture on page 11: J. W. McManigal from Gendreau, N. Y.

He described the company's policy of control tests which determine standards for purchase of equipment. This includes both on-the-job and laboratory-controlled testing. All products as they come on the market are tested, he pointed out. In this way, the plant's safety program is kept up to date and employees are assured maximum personal protection.

Purchasing for Safety

All departments involved are participants in the studies and drawing-up of standards. This means that acceptance of the tool or equipment is much more satisfactory in actual practice, he said.

A. C. Blackman, chief, California State Division of Industrial Safety, advised delegates to be sure to buy manufacturing equipment that meets your state's safety standards. He said there is little uniformity among states on purchasing for safety. Except for one or two states, he said, state agencies have no safety jurisdiction over machines

Seven Rules for Machine Tool Safety

(As presented by William A. Isaacson, safety supervisor of the Chrysler Corp., in a speech at the National Safety Congress)

1. ***UTILIZE*** **mechanical safeguards**
2. ***TAKE CARE*** **of hand tools**
3. ***WEAR*** **Proper clothing**
4. ***USE*** **personal protective equipment**
5. ***MAINTAIN*** **good housekeeping around machines**
6. ***BE AWARE*** **of hazards**
7. ***AVOID*** **horseplay**

or equipment until they are actually in a place of employment.

Blackman reminded plant operators that, in the long run, it is usually cheaper to obtain equipment provided with adequate guards in manufacture than to add makeshifts or "home-made" guards later.

"I can only suggest that we shall make a great step in the right direction if employers insist in their contracts that machines and equipment must conform with safety orders or regulations of their particular state," Blackman said.

Standardization Major Factor

Standardization will be an even greater factor in the industrial future, predicted Cyril Ainsworth, technical director of the American Standards Association.

He said the standardization now being planned and established in the field of nuclear energy is a good example of what the future holds. The underlying theme of this activity, he said, is essentially the interests of public and industrial safety.

The highly technical era ahead demands a high degree of standardization, he pointed out. Since all activities of industry will be in the hands of skilled specialists, standardization will be a valuable tool for keeping on top of the advanced technology.

"No one person will be able to possess the technical information necessary to a dependence on personal opinion," Ainsworth said. "This makes codified opinion, as expressed through standards, a source of information rich in the experience and knowledge of many as a principal guide in our future operations."

The flammability of solvents is only the beginning of their hazards. The three main hazards of commonly used solvents were discussed by Earl R. Wallace, senior safety engineer, Eastman Kodak Co., Rochester, N. Y. Among the flammable solvents, he included acetone, naphtha, alcohol, acetic acid, ethyl ether, petroleum ether and ethyl chloride.

Several are nonflammable but hazardous from a toxic standpoint, he said, the most common being carbontetrachloride, ether and chloroform.

The third hazard of solvents is their defatting action on the skin, he said. Most of the solvents mentioned are defatting compounds, he warned.

Machines can't think, and they won't jump on you like a jungle beast, said William A. Isaacson, safety supervisor of the Chrysler Corp., in a speech today before the 44th annual National Safety Congress.

"A machine shop is not a jungle in which you endanger your life by merely entering and becoming exposed to massive metal animals," he said, "but rather a place where accidents may occur if common sense, good judgment, training and supervision are not exercised."

"Industrial instrumentation and safety go hand in hand," declared Donald W. Richmond, instrumentation engineer of the Monsanto Chemical Co. He said instrumentation means the use of indicators, recorders, controllers and transmitters for meaurements such as temperature, pressure, flow, liquid level, and other analytical purposes.

Use of instrumentation is making rapid progress, particularly in the chemical industry, he said. This is mainly due to production demands, but it is also bringing many safety advantages.

"Actually, safety and instrumentation go hand in hand because good engineering includes safety in its design," Richmond said.

There's some hope that flame-resistant hydraulic fluids may soon minimize fire hazards in coal mining. That was indicated in the results of a preliminary survey discussed by S. P. Polack, health and safety engineer, U. S. Bureau of Mines.

He said the extent of the fire hazard can be realized from the fact that the survey indicates one gallon of hydraulic fluid is used for each 25.2 tons of coal mined. All fluids used in the mines surveyed were petroleum products and therefore flammable, he pointed out.

Test Fire-Resistant Fluids

Developmental work is now being done on fire-resistant fluids including straight synthetics, water-base synthetics and water-soluble oil emulsions, he said. Efforts are being made to standardize tests and also to make them more applicable to the conditions under which the fluids are actually used.

Safety does not begin at home —it should begin at work. Safe practices with such things as benzine and turpentine start in the factory, declared John B. Moore, technical director of the John B. Moore Corp., Nutley, N. J. He said the proper place to promote respect for these solvents is at work. If workers are permitted to use solvents under comparatively unsupervised and uncontrolled conditions at work, they think that's the safe way.

"I have often been in homes where carbon tetrachloride is used freely as a spot remover and have been told, defensively, that this is what they use at work," Moore said. "In effect, these people are saying, 'My boss wouldnt let us use it if it's as dangerous as you say."

This special report on the important National Safety Congress will be continued in our next issue.

THE FYR-FYTER CO. has announced the promotion of *Paul R. Warren* to General Sales Manager of the newly-created Fyr-Fyter Division. He will supervise sales of portable fire extinguishers and wheeled engines produced at the Dayton Plant. Warren also will be in charge of sales of all Fyr-Fyter accessory products including fire hose, nozzles, couplings, air masks, resuscitators, fire hose and extinguisher cabinets.

He has been in the fire equipment field 10 years. He joined Fyr-Fyter Company in 1950 as eastern regional sales manager and leaves that post to take over his new duties.

JOHN B. MOORE CORPORATION, following its policy of having qualified engineers as representatives in order to give scientific help to safety and maintenance engineers, has appointed *Norman Schultz* to handle the sales of the company's complete line of cleaning solvents in the states of Washington and Oregon. Mr. Schultz graduated from Oregon State College with a Bachelor of Science Degree in Electrical Engineering and has served as electrical and sales engineer for various firms.

DUST SUPPRESSION AND ENGINEERING CO., builders of wet type dust collectors, have moved their office to 120 South Broadway, Lake Orion, Michigan. The building houses the administration offices, engineering department, and testing laboratory.

IRON AGE safety shoes, Pittsburgh, Pa. has announced the appointment of two new representatives. *Robert S. Franklin* of Lynchburg, Virginia, has been assigned the territory of Virginia, North Carolina and the Kingsport area of Tennessee.

Olis Farley, Belpre, Ohio will cover the Central Ohio territory for the company.

MULTI-CLEAN PRODUCTS, INC., has started construction of a new $150,000 addition to its offices in St. Paul, Minn. The one-story and basement addition, which will provide more than 8,500 square feet of additional office space when it is completed February 1, is the seventh major addition to Multi-Clean's plant since the end of World War II. A second floor will be added at a later date, according to *N. H. McRae,* President. Only two years ago, the floor maintenance equipment firm's manufacturing facilities were almost doubled with the introduction of the most modern assembly line techniques.

The company has also announced the appointment of *Robert M. Barry* as chief chemist and liquid products manager. He will supervise production and development of all Multi-Clean chemical products, including floor cleaners, finishes and waxes.

DOR-O-MATIC DIVISION, Republic Industries, Inc., has moved into its new offices and factory at 7350 West Wilson Avenue, Chicago 31, Illinois. The division manufactures manual and automatic door controls.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia, has appointed *William E. Fischelis, Jr.,* manager of advertising and sales promotion of its Exide Industrial Division.

Mr. Fischelis, a native of Philadelphia, was graduated from Yale University. After serving 18 months in the U. S. Navy he entered the teaching profession.

Three years ago, he was employed by The Electric Storage Battery Company as an assistant in the advertising department.

THE HAMMEL-DAHL COMPANY of Providence, R. I., manufacturers of automatic control equipment, announces the appointment of the *George Haynes Company,* 406 West 34th Street, Kansas City 11, Missouri as additional Sales and Service representatives.

THE S. G. TAYLOR CHAIN CO., INC., Hammond, Indiana, manufacturers of alloy steel, welded and weldless chain, maintains a free sling chain inspection service to all users in the midwest. However, all slings must be delivered freight prepaid to the Hammond plant.

Taylor's inspection service is not intended to interfere with, or take the place of, a plant safety director's sling chain inspection and repair program. It is intended to assist him wherever and whenever possible. When inspection reveals that a section of the sling or several of its attachments are worn and

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need replacement, Taylor Chain advises the user and furnishes a written estimate covering the cost of the repairs. Taylor's repair service includes heat-treating the entire sling and attachments when necessary, and thoroughly testing the sling chain before it is returned to the owner.

THE YALE & TOWNE MFG. COMPANY'S Materials Handling Division has announced several new sales appointments. *Robert L. Brown, Jr.*, former assistant sales manager of gas, diesel and LP-Gas powered industrial lift trucks, has been named electric truck sales manager. He has been associated with Yale since 1953. Before assuming the executive post in gas truck sales he was a sales representative of the Yale Branch in New York City.

Charles E. Howard, veteran of more than 15 years experience in materials handling equipment with the company has been promoted to a newly created post of Manager of Attachments. In his new assignment, Howard will control the recommendation and sale of attachments for all Yale lines: gas and electric lift trucks, Worksavers and Warehousers. He worked in the engineering department for nine years, and since 1950 has been assistant sales manager of electric powered trucks.

Fred E. Rau has been appointed as Manager, Hoisting Equipment Sales. He formerly was assistant sales manager for hoisting equipment. He succeeds Carl O. Hedner, who has been appointed assistant general sales manager of the Yale Materials Handling Division.

An agreement between *MONSANTO CHEMICAL COMPANY* and *L. SONNEBORN SONS, INC.*, under which Monsanto will market a unique acid-sludge decomposition process based on an invention developed by chemist *Hunter Miley* of Sonneborn has been announced. Called the Miley-Monsanto-Sonneborn Process, the disposal technique simplifies the disposal problem, permits the recovery of practically all of the sulfuric acid values in the sludge, and converts the organic portion of the sludge into high-value coke.

AMPCO METAL, INC. has announced the appointment of several new Safety Tool distributors for the company's spark-resistant hand tools:

Cornwell Tool Co. 262 Techwood Drive, N. W. Atlanta, Ga.

Maddock & Company, Inc., 42 North Sixth St., Philadelphia 6, Pa.

Scientific Industrial Supply Company, 17 East 23rd St., Chicago 16, Ill.

Tools, Inc. 4109 Fulton St., P. O. Box 16065, Houston 22, Texas.

Watkins-Cottrell Co., 109–125 South Fourteenth St., Richmond 19, Va.

Hansen & Yorke Co. of N. J., 455 Green St., Woodridge, N. J.

Baldwin Supply Co., 207 Virginia St., West, P. O. Box 1546, Charleston 26, W. Va.

Holloway Bros., Capitol Trail & Kirkwood Hwy., Marshallton, Wilmington 8, Del.

A-C Supply Co. of Philadelphia, 1330 Federal St., Philadelphia 47, Pa.

Left to right: T. L. Peterson, John W. Simmons, E. Jack Burns.

Organization of an *Industrial Division* by *THE WILSON RUBBER CO.* of Canton, Ohio, has been announced by *John W. Simmons*, executive vice-president and director of the firm. This is the initial step in the current plans to revitalize and expand its various manufacturing and marketing operations for surgical, industrial, household, and linemen's gloves. In 1954, it became a division of Becton, Dickinson and Company of Rutherford, N. J.

As a result of the expansion move, Simmons has named *E. Jack Barns*, director of sales; and *T. L. Peterson*, sales assistant to the executive vice-president.

ANSUL CHEMICAL CO. has promoted *L. Thomas Plouff*, former manager of sales analysis and control, to the post of export sales manager. He succeeds the late C. Bernard Beidler. *David Piszczek*, former assistant to Plouff, succeeds him as manager of sales analysis and control.

At *ARCADIA MFG. CO.* of Birmingham, Michigan, *Draper Allen*, President, has announced the retirement of *J. Allen Bumpers*, formerly Secretary-Treasurer of the company. As technical expert in developing coating materials for industrial safety gloves, Mr. Bumpers has been succeeded by *Jack B. Harmon*, who has rejoined the Arcadia organization.

George M. Cole, formerly for many years with the Milburn Company of Detroit, has opened a safety equipment distributorship in Newton Center, Mass. Mr. Cole's new firm will be called *Hub Industrial Equipment Co.* and carry an extensive line of safety clothing and equipment, as well as some other items. The address is: 10 Nightingale Path, Newton Center 69, Mass.

DE WALT, INC. announces that *Charles W. Snyder*, formerly Philadelphia district sales manager, has been named to fill the newly-created post of industrial sales specialist for the firm which manufacturers power tools for homeshop and industrial applications. *Howard L. Hershock*, formerly a salesman-demonstrator, has been named to succeed Mr. Snyder in the Philadelphia sales district.

Truman Young, manager of Market Development for *WALTER KIDDE & CO., INC.*, Belleville, N. J., has been appointed Advertising and Sales Promotion Manager of the company, according to an announcement released by *Paul W. Eberhardt*, Kidde vice president. Mr. Young will serve Kidde in both capacities. He has spent more than twenty-five years in the promotion of fire extinguishing, detecting, and safety equipment.

BIL-JAX, INC. manufacturers of scaffolding equipment, winches and casters, has appointed the Ransome Corp. as a dealer for Philadelphia and the Delaware-Maryland-Virginia Peninsula area. The Ransome Corp. has its main office in Philadelphia, with a new branch office and warehouse in Wilmington, Del. Bil-Jax also announces the appointment of Plant Maintenance Equipment Ltd., 1125 W. Broadway, Vancouver, B. C., as a sales and rental outlet.

THE DAY COMPANY of Minneapolis is celebrating its 75th anniversary of continuous operation in serving industry. Founded by H. L. Day in 1881, the company manufactures dust control equipment widely used throughout this country and Canada. The concern is now headed by *A. B. Osgood*, president, and *R. E. Gorgen*, vice-president and, in addition to two Minneapolis plants, has branch facilities in Buffalo and Fort Worth.

Frank Gaines

Jack Newburn

THE MODERN POWER SWEEPER CO., of Azusa, California, one of the largest manufacturers of power sweepers in the West has been purchased by *Frank Gaines* and *Jack Newburn*. Man-

ufacturing operations will continue at the plant at 738 North McKeever Avenue, Azusa. A 10-year old operation, the company manufactures a complete line of nationally distributed power sweepers that are widely used in schools, hospitals, industrial plants and by municipalities.

The new owners are well known figures in Southern California industrial circles. Jack Newburn will act as general manager. He plans to step up production as well as distribution of the sweepers, and two new sweepers for heavy duty industrial use are being introduced.

ACME STEEL CO. has announced the appointment of *The Camp Company*, 6958 S. State St., Chicago 21, Ill. as a distributor of Acme steel floor plate.

In this section of the November issue, announcement was made of the appointment by *FINE ORGANICS, INC.* of the Virginia-Carolina Safety Equipment Co. as an exclusive sales representative. The equipment house, headed by O. P. Baird, is exclusive distributor for Fine Organics in just the state of North Carolina.

Safety Appointments

COLONEL LEONARD F. CARTER, chief of the Ground Safety Office at Headquarters, Air Materiel Command, Wright-Patterson Air Force Base, for four years, has been assigned to Headquarters, Air Materiel Force, European Area.

Colonel Carter will be stationed at Wiesbaden, Germany, and assigned as Chief Office Installations Engineer.

During his years at Wright-Patterson, Air Materiel Command won the National Safety Council's highest award for four consecutive years. It is the first time any major air command has achieved such a record.

The colonel pioneered the ground safety program in AMC. The program he originated while stationed at Hill Air Force Base, Utah, in 1941 and 1942, was expanded to include all AMC installations and adopted by Headquarters, U. S. Air Force in 1943. He is the senior officer of the military forces actively engaged in Industrial and Traffic Safety. He is the only officer holding the three awards, Commendation Ribbon, Bronze Stars, and Legion of Merit, in recognition of his work in pioneering and promoting the accident prevention program.

H. D. TOMPKINS, Vice President, The Firestone Tire & Rubber Company, was elected Chairman of the Inter-Industry Highway Safety Committee at the annual meeting of the Committee's Board of Directors held in Detroit. He succeeds A. vanderZee, Chrysler Corporation, who was Chairman for two years.

Floor Maintenance

(from page 20)

In industry, two coats of the penetrating sealer are recommended as a minimum for the initial application. Three are preferable. Application can be made either with a string mop or lamb's wool applicator. Drying time is 3 to 4 hours. With the pure penetrating ing sealers, the result is sort of a satin-sheen, hard, durable surface—very desirable in textile mills and other industries. The floor becomes impervious to moisture, oil and greases, mild alkalis and acids, is non-slippery, reflects light, and thereby improves illumination, is relatively easy to maintain and becomes a thing of beauty which some of us would be proud to have in our living rooms. I am always amused by a story which concerns cuspidors—a common sight in textile mills years ago, and still in some today—of the textile mill superintendent who was so tickled with the appearance of his newly sealed floors that he removed the old cuspidors one or two a day until finally there were none. Whether the tobacco industry suffered, or more cuds were swallowed thereafter, is a matter of conjecture.

A Tip on How to Improve Appearance

One other suggestion in the application of these seals—although it is not absolutely necessary, steel wooling between coats will enhance the beauty of the final finish. Use of a #0 or #1 Steel Wool either with a single disc or drum type steel wooling machine. Sweep floor thoroughly before applying the next coat of seal. It would also be our recommendation that if a drum type steel wooling machine is used, it be one on which the drum pressure on the floor can be controlled by a hand lever, as illustrated in Figure 4.

Now that we have a "Home Beautiful" floor in our textile mills and industrial plants, what about maintenance? Daily sweeping, in some cases several times a day, is a must—using a light-oil-treated dry mop. Use this mop just as a broom would be used. Oil and grease deposits are removed easily, grit and dirt are picked up by the mop, and a hard, bright sheen can be maintained on the floor at all times. It would periodically become necessary to damp mop, as it will to "dry clean" the floor with a drum-type steel wooling machine shown here. This is particularly desirable just prior to the re-application of a coat of seal which becomes necessary from time to time.

Supervision and Costs

No discussion on any type floor maintenance would be complete without mentioning supervision and costs. Without the proper supervision and delegated responsibility, no floor maintenance schedule can ever be successful. The program must be placed in charge of one man or under the direct supervision of one department head. Well maintained floors are as much reason for company pride as is the top quality finished product which leaves the production line each day.

Good Materials Save

It is a fallacy to attempt a low cost floor maintenance program by buying the cheapest products available. It has long been established that the ratio between labor and material in floor maintenance is 90–10—and perhaps at this writing is nearer 95–5. We recommend strongly the purchase of the best material available as a means of reducing labor costs and thereby keeping yearly maintenance costs at a minimum. Purchase your material from a reputable firm in which you can put complete faith. Many of them, including our own will make a complete plant survey for you, making recommendations not only for floor maintenance but for other phases of sanitary maintenance as well—all this without any obligation to you.

Good housekeeping is good business—you can not afford anything less.

A source for further information on rubber resin sealers for concrete floors and epoxy type sealers for wood floors can be obtained upon inquiry to the Editor.

Pictures by courtesy of The Selig Company.

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(For details, use Key # Y-25 on card on page 35)

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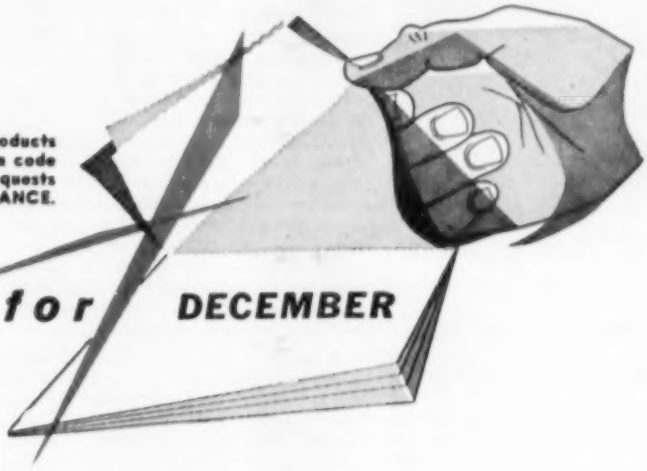
To obtain descriptive literature of products listed, use Reader's Inquiry Card. Write in code number given each item. Send written requests to: Service Dept., SAFETY MAINTENANCE.



what's new for DECEMBER

ICE REMOVER IN HANDY PACK

(Use Key # 701 on Inquiry Card on page 35)

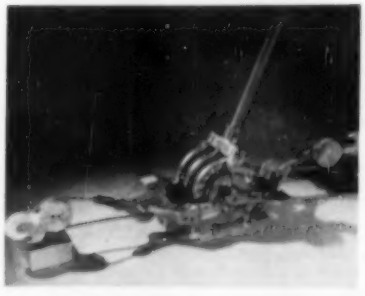
CHLORIDE-free ICE REM-CF has been made available by Speco, Inc., in special 5- and 10-lb. metal containers that fit conveniently in cars and trucks. They are intended to provide an emergency supply of ice melting material for use under spinning wheels on slippery surfaces. Units are moisture sealed and can be carried indefinitely without deterioration, states the manufacturer.

Introduced recently, ICE REM-CF is reputed to be 99.99 percent chemically active. Unlike ordinary ice and snow melting chemicals, it does not produce a heat effect as part of its melting process. This feature is said to make it ideal for application on cement, concrete and asphalt. In addition, it is claimed that it will not corrode aluminum and other metals. Because its molecular structure has a greater depressing point on ice than salt, it has substantially more thawing capacity at lower temperatures and in the sub-zero range. It leaves no messy residue and won't absorb moisture from the air. Consequently, it is clean to use and simple to store.

HEAVY DUTY HAND WINCH

(Use Key # 702 on Inquiry Card on page 35)

A HEAVY-DUTY, manually-operated power tool designed to lift, lower and pull, has been developed by the Multiple Corp. Serving many needs, it can be used to move heavy machinery, load or unload equipment from platforms, vehicles, etc., lift elevators in need of repair, pull vehicles from ditches, etc. The lightweight cable unit, which in many instances can be operated by one man, is available in several models. The single reel unit pulls



in one direction only, and has a maximum reel capacity of 100 ft. The double reel unit pulls in two directions at one time, and its maximum capacity is 50 ft. on each reel.

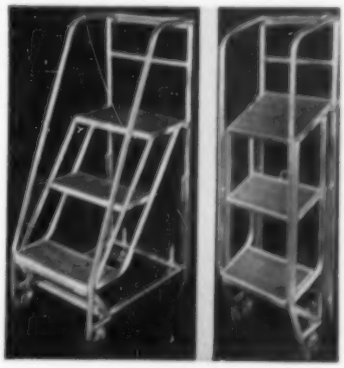
A self-contained brake is provided for the reels with standard cable equipment consisting of 30 ft. of ¼ in. cable. Cable capacity is 7,000 lbs., single line. Safety features include a formed steel safety catch to prevent accidental release of the load. Application of the reel brake provides added protection against accidental load release. The units, known as Multi-Pul, are recommended for plant maintenance, warehouses, mining companies, contractors, etc.

FOLDING STEP LADDER

(Use Key # 703 on Inquiry Card on page 35)

TO THE strength and stability of their Safety-Step ladders has been added the convenience and safety of an easy fold-up action, the Ballymore Company has announced. The new unit is a standard, 3-step aluminum model, equipped with retractable ball-bearing casters, and weighs approximately 18 pounds. It is intended for use on jobs requiring the handling ease and versatility of a lightweight folding ladder.

To fold, the user simply pulls up on the handle of the smooth-acting Ballyfold and the ladder closes to a compact 10" depth. In this manner, it can be easily carried or stored after use. Deep top step is 30" above the floor, providing ample height and safety for average working levels up to 7' 6". The ladder can be rolled smoothly and effortlessly into position. Its casters retract automatically when user steps on, providing solid, 4-point contact as the wide-base rubber-tipped legs grip the floor. For added support and safety, the ladder is equipped with sturdy handrails. Steps are covered with non-slip corrugated rubber treads. All parts are welded.



CASE GOODS HAND TRUCK

(Use Key # 704 on Inquiry Card on page 35)

AN IMPROVED model hand truck for glass and case goods, said to incorporate important operational and safety features, has been announced by Rol-Away Truck Manufacturers, Inc. The adjustable truck Model A-B is especially designed to handle large, bulky, flat crated case goods such as plate glass, sheet metal, wallboard, plywood and similar material. The most important departure in the new design is in loading. Its upper structure tilts forward without lifting the wheels from the floor. The load is then tilted back to any desired slant and held at that angle by means of adjustable set screw stops.

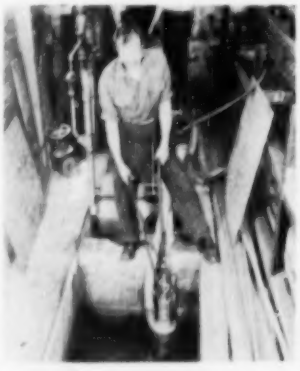
Because of the greater slant of the load, much wider cases can be carried than with former models. Cases up to 18-inches in width and up to 2,500-pounds in weight are held firmly by the new model and handled with ease by one operator. One of the most important features of the new Rol-Away Model A-B is its greater safety. Because the wheels do not leave the floor in loading, rolling while loading is eliminated. Also, since the load is carried at a greater angle in a firmly braced position, tilting or tipping is minimized.

HEAVY DUTY FLOOR MACHINES

(Use Key # 705 on Inquiry Card on page 35)

THE BREUER Electric Manufacturing Company has announced a new line of heavy duty floor machines. The line includes 14, 16 and 18 inch brush sizes to suit every application. Known as the Tornado Series 90, it is powered by a heavy duty capacitor start motor. The brush starts easily under the heaviest loads for scrubbing, stripping, polishing, steel wooling, sanding and terrazzo grinding. The brush coupler mounts directly on the gear drive and is designed to grip the brush accurately for smooth operation. A slight movement in the opposite direction quickly removes the brush. In addition, the Series 90 features dual switch controls at the handle, underhandle cable connection and self-retracting, non-marking neoprene wheels. All machines are equipped with tough, resilient vinyl bumpers at the edge of the housing covering the brush and at the top of the motor housing to prevent scuffing and marring of furniture and equipment.

A complete line of brushes and accessories are available for the new series. These include metal back brushes, wood back brushes, both styles available with Bassine, Palmetto, Union Mixture, Tampico and Steel Wire filling. Wood back brushes are also available with Butcher Wire filling for dry scrubbing concrete and wood block floors. Steel wool holders, sanding discs, lamb's wool buffing pads and carborundum grinding stone equipment are also available.



NEW SUMP PUMP

(Use Key # 706 on Inquiry Card on page 35)

AN AIR operated sump pump has been made available to the construction, industrial, and mining markets by the Le Roi Division, Westinghouse Air Brake Co. The pump is rated at 340 gallons per minute against a 10-foot head. It is available in either steel or bronze, with the latter for use in pumping acid or corrosive liquids.

Features of the new pump, which operates with a maximum head of 95 feet, include light weight construction, low air consumption, a governor-controlled motor, and a built-in lubrication system. It is designed for removing water or other liquids from tanks, sumps, ditches, manholes, or traps. The pump requires no priming and has a base diameter of 8 inches and is 23 inches high. It has an air inlet of ¾ inch in diameter, while the discharge outlet is 2½ inches in diameter. Net weight of the steel model is but 56 lbs.; the bronze model weighs 75 lbs.

UNDERGROUND TANK VENT

(Use Key # 707 on Inquiry Card on page 35)

IN ACCORD with the latest National Board of Fire Underwriters standards, the No. 45 Up-Flow air vent is said to eliminate the dangers of accumulating vapors in underground storage tanks by permitting the vapor to escape easily in an upward direction. This upward projection of vapor eliminates the hazards of fire and explosion possible with down-vented gasoline vapors. Over-size area of the air vent allows vapors to escape rapidly without any restriction to flow even under "tight-fill" service practice.

Simple three piece construction includes hood, screen and body which are assembled with a single center screw. With the exception of the removable brass screen all parts are made of aluminum for complete long-life, maintenance-free service. Design features include a three spout cone-shaped hood which provides quick escape route for drain water. Spouts also serve to support hood on body. The cone of hood fits into the brass screen and automatically centers in position.

Standard 40 mesh brass screen seats in an internal annular groove at base of body and prevents ingress of dirt and moisture. Other mesh available upon request. The body, only slightly larger than the pipe, can be installed close to the wall, has no threads, is held firmly in place by tightening screw, and has an internal annular groove which collects moisture and drains it through a hole in side of body. All parts are removable for inspection or cleaning. Available in two sizes: 1½" size—3⅛" max. dia. x 3⅞" overall height; 2" size—4" max. dia. x 4¼" overall height.

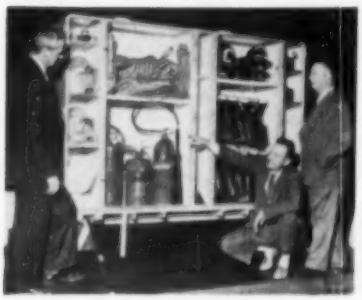
REFLECTIVE COATING KIT

(Use Key # 708 on Inquiry Card on page 35)

A NEW coating kit called "101" with materials for reflectorizing such safety hazards as curbs, traffic islands, loading docks, building projections, bridge and overpass abutments, etc., has been announced by the Cataphote Corporation. It is reported that this new coating is visible four times farther than previous curb markings. The new "101" coating is also effective for reflectorizing airport runway markings, narrow vehicle passages, and

other unlighted surfaces or objects that may be safety hazards for vehicular traffic.

The kit consists of five gallons of specially formulated binder that can be sprayed or brushed on, 75 pounds of minute glass spheres smaller than sugar granules and a hand operated sphere applicator. It provides enough material for 750 square feet of reflective coating. Reflection is immediate upon application of the extra high index glass spheres while the binder is still wet. Available in white or yellow, the binder sets to the touch in 10 minutes and dries hard in 40 minutes.



INDUSTRIAL EMERGENCY UNIT

(Use Key # 709 on Inquiry Card on page 35)

DANA Corporation's Parish Pressed Steel Division has announced the marketing of a mobile industrial emergency unit for use in connection with plant disaster and civil defense programs. The unit, which may be transported where needed by fork truck pickup, or easily pushed on its own rubber-tired wheels to a disaster area by two men, is eight ft. long, seven ft. high, and four ft. wide. Compartments occupying one side and both ends of the unit hold such emergency needs as six firemen's rubber coats; two aluminized asbestos suits and one asbestos blanket; six fire-fighter helmets; six pairs of rubber hip boots; two each of the following types of fire extinguishers: 2½-gals. water, pressurized dry chemical, and 15-lbs. carbon dioxide; and two big beam hand lights.

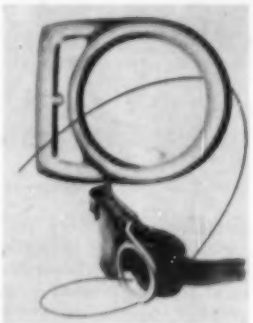
Other equipment includes one first aid kit; three gas masks; six pairs of heavy rubber gloves; two pairs of electricians' rubber gloves; two wrecking bars; two crow bars; a pick head axe; a fire shovel; three 50-ft. sections of 2½-in. fire hose; four 50-ft. sections of 1½-in. fire hose; a 10-ft. folding ladder; a 12-ft. folding pike pole; a ½-in. x 100-ft. hemp hand line; and two ¾-in. x 100-ft. hemp hand lines. Smaller equipment includes six spanner wrenches; insulated electric wire cutters; 24 assorted rubber fire hose gaskets; and a Siamese gate valve with quarter-turn shut-off. The unit being marketed is a refinement of the custom-built model illustrated. Optional equipment available includes plastic or folding-type doors for each compartment, and a standard trailer hitch.

FIRE-RESISTANT LUBRICANT

(Use Key # 710 on Inquiry Card on page 35)

A SYNTHETIC lubricant for air compressors said to minimize explosions and receiver fires as well as carbon deposits on exhaust valves and air system piping has been announced by Monsanto Chemical Company's Organic Chemicals Division. Trademarked Pydraul AC, the lubricant is described by Monsanto as a fire-resistant fluid equivalent in lubricity to a premium grade lube oil. Similar in many of its properties to the company's other Pydraul fire-resistant fluids, it reportedly differs in its marked ability to reduce carbon deposition. Fires and explosions in compressed air systems are not uncommon and can be hazardous to personnel and very destructive to property. Although no single explanation exists for the cause of these occurrences, it is generally agreed that they involve combustible films or mists of petroleum-based lubricants or residues.

Pydraul AC is the result of many years of experimentation with synthetic lubricants by air compressor operators, particularly in petroleum refineries, gas pumping stations, power generating plants and other critical industries. It has been tested and proved in hundreds of such compressors by more than 30 major companies, the manufacturer states. Conversion of compressors from petroleum lubricants to Pydraul AC is reportedly simple. Splash-lubricated compressors need only be cleaned of their petroleum deposits before installing the new fluid. Separate force-feed cylinder lubricators can be converted with modification kits available from major lubricator manufacturers.

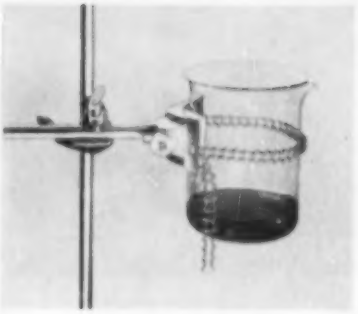


NEW DEE RING

(Use Key # 711 on Inquiry Card on page 35)

A DEE ring of new concept in design, on which a patent is pending, has been developed by the Miller Equipment Co., Inc. This new dee, identified as MCD (Miller Circle Dee No. 1400) is functional in design, adaptable to any style belt and requires no special application or different technique to use.

The design is said to make it impossible for the snap to get underneath the waist strap, thereby eliminating snap roll-out hazard. In addition to safety features, the new MCD angle is more comfortable, relieving body pressure where the dee plate is fastened to the belt because it holds the safety strap in a more normal relation to the pole.



LABORATORY CHAIN CLAMP

(Use Key # 712 on Inquiry Card on page 35)

WITH THE use of a chain and tightening device on its new laboratory clamp, glassware and other apparatus can now be secured quickly and safely without changing hands, the Fisher Scientific Co. has announced. One end of the steel chain is permanently attached to a movable slider. When apparatus is to be secured, the chain's free end is looped around the glassware and hooked on the other side of the clamp body. A tightening device is then used to provide the necessary amount of holding tension.

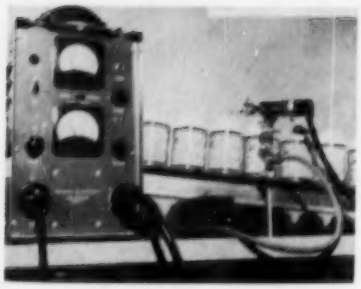
Any apparatus with a diameter of from 3- to 6½-inches may be secured with the chain, including beakers, bottles, stirring motors, columns, small gas tanks, glass piping, etc. The jaw of the clamp is coated to provide a non-slip grip.

BURN KIT

(Use Key # 713 on Inquiry Card on page 35)

THE M-S-A Foille Burn Kit, for immediate treatment of all types of burns, has been introduced by Mine Safety Appliances Co. The Kit consists of four 10-ounce Foille Aerosol Sprays and Type D first aid dressings and accessories. It is contained in an all-weather case made of 20-gauge steel.

Use of the aerosol spray provides a safe, fast technique for application of Foille antiseptic. Foille is said to control pain, mitigate shock, and help preserve tissue in burned areas. Its detergent action often eliminates the necessity of scrubbing grease-stained, dirty wounds. The Foille antiseptic can be used for all types of burns.



LEAK DETECTOR

(Use Key # 714 on Inquiry Card on page 35)

AUTOMATIC, high-production leak testing has been made possible with a modification of General Electric's Type H-1 Leak Detector. The hand-held "gun" of the standard model has been replaced with a fixed head for attachment to the conveyor belt of mass-produced products. Minute leaks can now be caught on the assembly lines in articles ranging from bug bombs to beer barrels. In general, any container which can hold a small quantity of halogen under pressure is a suitable application.

Conveniently mounted, the small fixed-head houses the sensitive element. An aspirator pump mounted near the fixed head provides the air-sample flow through the element. Leak defects are indicated visually and/or audibly. By auxiliary means initiated at the control box it is possible to remove defective items automatically. Sensitivity of the Type H-1 fixed-head leak detector is 13 ppm, and response time is rapid (½-inch per second or better, depending on the application). Power requirements are 120 volts, 60 cycles, 85 watts, 0.96 PF. Net weight of the detector unit is 2 lb. and the control unit weighs 18 lb.

ANTI-SLIP TERRAZZO FINISH

(Use Key # 715 on Inquiry Card on page 35)

A NEW product said to make floors slip-proof and to remove rubber marks has been announced by the Lamco Chemical Co. It is known as Lamco Slip Preventer and Rubber Burn Remover. Slippery floors can be minimized, even when wet or damp, and rubber burns (black marks caused by rubber heels and soles) can be easily removed without stripping the floor of its wax base.

According to the manufacturer, the product means that double the work can be done with half the man power, as it eliminates frequent waxing and stripping in floor maintenance. It has been tested and approved by Skinner and Sherman, official chemists of the Rubber Manufacturers Association and the Asphalt Tile Institute; also by the York Research Corporation, official testing laboratory of the Hotel and Motel Association of America. The product does not contain free alkali, and is recommended for terrazzo floors. It is formulated to clean, seal and protect against chipping in one application. The product is available in one and five-gallon cans and 30 and 55-gallon drums.

LUMINOUS PAINT AEROSOL

(Use Key # 716 on Inquiry Card on page 35)

TO PROVIDE safety in the dark is said to be the primary function of a new aerosol spray paint made available by Rapco Products. Safety switches, emergency controls, fire exits and dangerous areas marked with the glowing paint help to eliminate accidents during power failures and short circuits by allowing the areas or materials to be clearly seen in the dark.

The paint is easy to apply and after exposure to natural or artificial light will glow for approximately ten hours in the dark, according to a report issued by U. S. Testing Laboratories. It will recharge itself after each exposure to light. Available in 12-oz. aerosol containers.

An adhesive-backed glowing tape, similar in function to the paint, is also obtainable from the company. It is supplied in ¾ x 24 inch rolls, but special widths and lengths are available upon request.

1,000 LBS. CAPACITY FORK LIFT

(Use Key # 717 on Inquiry Card on page 35)

A NEW mobile fork lift truck, the Tubarlift Champion Stroller, has been developed by Uhrden, Inc. Designed to elevate loads up to 1,000 pounds at lifting heights up to 60 inches, the unit is said to combine ruggedness, stability and ease of operation with assured advanced safety features to fit a wide range of industrial applications.

Equipped with dual lifting chains for added strength and a 12-volt electrical system with built in battery charger, the Tubarlift Champion Stroller provides versatility in a compact, rigidly welded steel body on roller bearing wheels that permits operation in narrow aisles. Additionally, the new unit has an overall height of 73½-inches, overall length of 53-inches, overall width of 30½-inches, 25-inch forks, and a maximum lifting speed of 33-feet/minute. Shipping weight is 600 pounds.

Safety features include push-button self-releasing controls, three wheel brakes with emergency brake for self-locking position, and a steering handle that locks back into place when released.

LENS CLEANING TISSUES

(Use Key # 718 on Inquiry Card on page 35)

A BOON to plant safety and maintenance programs, chemically treated tissues will clean and fog-proof lenses in one operation with plain water. The lenses are merely wetted and wiped with No-Fog lens cleaning tissues. No other chemicals are necessary. The tissues may also be used dry for cleaning or polishing.

The chemicals active in the tissues are harmless to the skin and are non-abrasive, according to the manufacturer, the Carhoff Co. The tissues may be used on glass or plastic goggles, eye glasses, face shields, gas masks, etc. Ample-sized, the tissues measure 4½" x 10¾". Available in plain boxes or light and heavy duty stations for plant use.

PAPER FOOD SERVICE

(Use Key # 719 on Inquiry Card on page 35)

A COMPLETE paper food service, manufactured by the Dixie Cup Company, is said to provide quiet, fast, sanitary food service at plant cafeterias, lunch rooms, etc. Dish breakage is eliminated entirely. This disposable, new service makes an entire clean-up possible in a matter of minutes when a cafeteria feeds several shifts during a single mealtime.

Dixie Food Service makes the lunch area noticeably quiet, leading to more pleasant eating conditions for the employees, according to the manufacturer. It also saves on storage space as 250 9" Dixie plates can be stacked in the same space normally required for 25 china plates. A tray of Dixie Food Service is easier to handle because it is about six pounds lighter than a tray filled with glass and chinaware. The Dixie Food Service for plant cafeterias may be ordered in various attractive designs.

PAINLESS ANTISEPTIC

(Use Key # 720 on Inquiry Card on page 35)

ISODINE (R), a new, painless, non-staining antiseptic has been made available by the Davis Emergency Equipment Co. The new preparation has been found to be an effective bactericide against bacteria involved in skin infections, pimples, boils, cuts, wounds, etc. In use for more than three years at one of New York's large hospitals, the medication demonstrated its value on almost 4,000 cases.

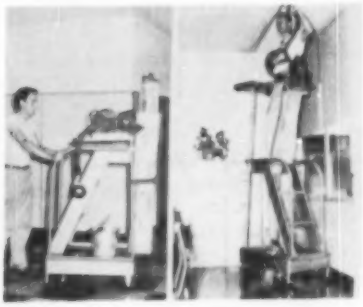
The new antiseptic is detoxified and non-poisonous. Even when swallowed accidentally it is non-injurious. It is being packaged in the form of swabs and applicators, and in 1-ounce bottles. Both the swabs and the applicators contain an anti-freeze component so that they may be used in the field.

MOBILE LADDER-TRUCK

(Use Key # 721 on Inquiry Card on page 35)

THE SAFE-LAD Mfg. Company has introduced its new M-4 mobile ladder-truck for overhead maintenance. Small and light-in-weight, it is designed for use in the 7 to 11 foot overhead maintenance zone of industrial buildings, schools, hospitals and offices. It can be used for the cleaning of windows, blinds, transoms, upper wall spaces, and for the maintenance of lights, to name a few of its applications.

The mobile ladder-truck transports needed supplies on upper and lower work

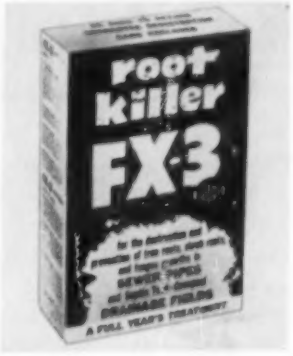


trays to the work area, through doorways and into regular elevators. The upper work tray is adjustable to a convenient and safe waist level for the worker. The unit locks automatically and provides guard rail protection so that both hands are completely free for overhead tasks. Designed with four steps, it has an overall height of 55 inches with guard rail down; length of 31 inches, width of 23 inches, and weighs 106 pounds. The unit provides eye-level height of 9 feet 6 inches, and reaching levels to 11 feet. Construction is all steel, arc welded for durable service. All surfaces are finished in an attractive hammertone green enamel. Strength and stability of the M-4 exceeds the American Standard Safety Code.

SEWER PIPE ROOT KILLER

(Use Key # 722 on Inquiry Card on page 35)

A NEW, once-a-year treatment to clear and prevent clogging of sewer pipes and septic tank-cesspool drainage fields caused by tree roots, shrub roots, and fungus growths, has been announced by the FX-Lab Company. This product, marketed under the trade name of Formula FX-3, consists of a crystalline formulation that is said to attack only the "drinking" mechanism of the roots, completely destroying them without harming any other part of the tree or shrub. It will seal off the roots



at that point and prevent future growth, according to the manufacturer.

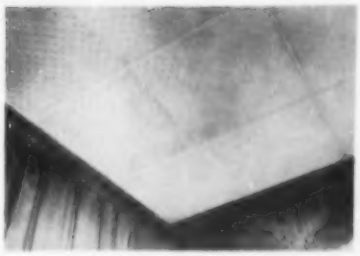
Safe and easy to use, FX-3 is applied through the toilet bowl, and simply flushed to point of obstruction or penetration. This new product is non-caustic, non-acid, and harmless to clothing and skin. It will not harm plumbing fixtures, or necessary bacteria within a septic tank or cesspool disposal system. Available in two pound packages, sufficient for a full year's treatment.

EAR MUFF & HEADPHONE

(Use Key # 723 on Inquiry Card on page 35)

A NEW development has been introduced by Mine Safety Appliances Company to help combat loss of hearing due to industrial noise. The phone-equipped M-S-A Noisefoe performs two vital functions: It protects the wearer from harmful noise, and it provides instant and clear communications, even in an extremely noisy environment.

According to company engineers, the phone-equipped headset provides the same ear protection as the standard Noisefoe, is comfortable to wear and easy to put on and remove. Additional safety is a by-product of the phone-equipped Noisefoe as clear communications can prevent accidents caused by orders that are misunderstood. The phone receivers do not interfere with the firm acoustical seal which the soft, spongy ear cushions provide. The suspension type headset is equipped with a standard jack, which can be connected to intercommunication systems, telephones, radio systems or other circuits.



NON-COMBUSTIBLE ACOUSTICAL PANELS

(Use Key # 724 on Inquiry Card on page 35)

ELOF HANSSON, Inc., has introduced a new, non-combustible acoustical paneling for ceilings. Known as Hansotex, its sound absorbing element can be pre-selected and permanently bonded to the aluminum facing at the factory.

According to the manufacturer, the panels are moisture proof, rot-proof, fungus-, mildew- and termite-proof. Washing or repainting may be done with the units in place or after removal by inexperienced maintenance men. Initial installation of the panels is an easy matter, as the panels are simply placed into exposed Tee-runners or Zee-runners. Available in 2 x 2 ft. units, the panels contain an embossed pattern finished in a glare-free baked enamel.

NEW LINE OF PAPER TOWELS

(Use Key # 725 on Inquiry Card on page 35)

A COMPLETE new line of paper towels, specifically designed to fit all three of the towel dispensers commonly found in company washrooms today, has been marketed by the Scott Paper Company. The Scot-Tissue towel, known as a C-fold, has now been joined by two new towel products, a singlefold and a multifold towel, to make a full industrial towel line available to fit any requirement.

This new line offers many advantages, including quality control, proper absorbency, correct size, adequate stretch, wet strength, and no odor or lint. The singlefold towel measures 10" x 10½" and the multifold towel is 9⅜" x 9½" in size. The ScotTissue towel measures 10$\frac{7}{16}$" x 14". Softness and whiteness are two important advantages offered by the new singlefold and multifold towels. They will also keep their strength when wet and will stretch to fit the contours of the hands.

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NEW! Flexible Plastic Goggles

MEET WIDE RANGE OF INDUSTRIAL APPLICATIONS

New CESCO No. 565
Flexible Plastic Goggles

Extremely lightweight and durable—molded from soft vinyl material—these #565 CESCO Flexible Plastic Goggles protect workers from dust, splashing liquids and moderate impact from any direction.

Comfortable to wear • They are perfectly contoured and fit snugly all around. Small perforations, angled away from the eyes, give adequate ventilation.

Give complete protection • They leave no open spaces. Fit perfectly over most personal glasses.

Permit full view • Wide window lenses are curved rather than flat to allow best vision.

Available in two styles • No. 565C (with clear plastic lens) or No. 565G (with green plastic lens).

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ASK your CESCO Safety Equipment Distributor to show you this new goggle and the many other goggles in the complete CESCO line

CESCO FOR SAFETY

(For details, use Key # Y-26 on card on page 35)

Thantis® LOZENGES

first aid for throat irritations

SORE THROATS due to coughs and colds, if neglected, may result in lost man hours of work.

THANTIS® Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

THANTIS Lozenges relieve pain promptly—reduce infection—act prophylactically.

Twenty-six years' extensive clinical and lay use has proved the safety and effectiveness of this popular product.

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First aid for wounds . . .

Neglect may cause infection which can be prevented by prompt use of 'Mercurochrome.'®

No antiseptic has been proved to be more effective than 'Mercurochrome' for topical application.

(For details, use Key # Y-27 on card on page 35)

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